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EDUCATIONAL NEWS AND EDITORIAL COMMENT

The War and the School

The effect of the war on schools is difficult to predict. Higher institutions will certainly suffer a falling off in numbers and some which are on an insecure financial basis will undoubtedly collapse. The lower schools have suffered through the draft, through the reorganizations that are going on in the economic world, and through loss of many officers, so that faculties and whole school systems will be in many cases very different in September from what was planned at the close of school.

The subject-matter of instruction in all schools will be influenced by the war. Special studies in European history and geography are eagerly sought, and, on the practical side, home economics and engineering and technical courses are likely to be full of young people preparing to contribute their share to the life of the nation.

One of the most notable moves by way of a national use of the educational machinery of the country is that inaugurated jointly by Mr. Hoover and Commissioner Claxton in their preparation of a series of lessons on good citizenship and intelligent conservation. These lessons are to be published by the Bureau of Education in form for immediate use in the schools. They will consist of readings on a large range of topics of an economic and social character. They will aim to show how the whole machinery of modern society

has grown up around the efforts of man to satisfy his needs. Some of the commodities which men need are supplied by nature; others are created by human effort. In the production and distribution of the things which men need there has been evolved an organized co-operative society which children must understand.

The lessons will appear once a month in the form of bulletins from the Bureau of Education. They will supply an element which has been vaguely recognized as needed in the school curriculum.

It is expected that the President of the United States will lend his influence to the movement and that school officers in all parts of the country will see the importance of meeting with a timely course of this kind the demand for a co-operation on the part of the school in the cultivation of a new sense of national responsibility.

From the *Journal* of Providence, Rhode Island, is clipped the following statement:

The Junior High School in the East

With the opening of school next September, Providence will put into operation three junior high schools, a step looked upon by the authorities as the most important in years in the development of the city's educational policy.

Only the beginnings of the new system can be made at this time, because of the many fundamental changes necessary in present methods, which, for various reasons, must be made gradually. The school officials, however, are definitely committed to the plan, and it will be worked out to cover the whole city as rapidly as possible.

The junior high-school idea involves breaking up the educational scheme of long standing of having eight years of elementary training in the grammar and primary schools and four years more in the high schools, and substitutes for this a six-year course in elementary schools, three years in the junior high school, and three years in the senior high school.

This plan, which is now common in the West and is rapidly coming into use in the East, serves two purposes, according to Superintendent of Schools Winslow. It provides a better education for children who leave school at an early age than they can now be given in the grammar schools, and it provides a desirable transition school between the grades and the high schools, making the change easier for those who are to continue their studies.

Plans now being worked out by Superintendent Winslow call for the creation of junior high schools for next fall in the John Howland, Charles Street, and Laurel Hill Avenue buildings. Changes in the curriculum to meet the new conditions are being prepared and other steps taken to put the plan into effect. The children in these three school districts who finished their elementary

training last month and who would ordinarily go to the high schools this fall, will be kept at their old buildings, in accordance with the scheme.

Additional junior high schools will be opened in the future as room for them can be provided. When the plan is in working order, the elementary schools of the city will consist of six grades of a year each. The present seventh and eighth grammar grades will be abolished as such and, combined with the present high-school Freshman year, will constitute the junior high-school period.

Superintendent Winslow is of the opinion that great benefits to the pupils will result from the change. Three distinct courses of study will be open to children in the junior high school, one of them designed to meet the needs of those who are to continue into the senior high school and the other two developed especially for the many whose schooling will end with the junior high school.

The course for those to attend the senior high schools later will be largely literary. One of the courses for pupils who are to go to work will consist of industrial training, fitting children for places in manufacturing plants, while the other will be a commercial course, designed for those who wish to learn office work. Each course will be so planned, Mr. Winslow states, that it will provide, in so far as the time of training allows, a well-rounded education in the particular branch of work selected.

The courses at Technical High School and the new commercial high school, to be established when the new high-school building is erected, will be so arranged, Mr. Winslow says, as to offer continuation work to junior high-school children who have taken the industrial or commercial course and, finding that they are able to stay in school longer, desire to attend the senior high schools.

A complete revision of the present classification of teachers and their ratings, changes in equipment, and many other variations from the present system will be necessary before the new plan can be effective all over the city, Mr. Winslow states, and will have to come about gradually. It will probably be several years, it is said, before the new system will be in complete operation here.

From St. Louis comes the following:

The Junior High School in the West

Purchase of the Manual Training–Smith Academy property in St. Louis for $300,000 inaugurates the junior high-school movement in the Mississippi Valley with an impetus that presages a tremendous growth within a few years. For several years students of school conditions have been working on plans that will fix the curriculum of the modern school along the line of child development, rather than run counter to it.

The idea embodied in the establishment of the junior high school is to allow the pupil, as he reaches that stage in life when he thinks of life preparation, to form ideas as to what he shall do, and then to allow him a greater

opportunity to test his fitness for the trade, profession, or occupation as well as it can be done in the school.

To do this the St. Louis school authorities will follow the lines that have been suggested by those who have strongly advocated a differentiation of school study along modern democratic lines. As a step in line with that policy, the new school, which will be inaugurated with the opening of school in September, will provide for an intermediate school between the high school and the grammar grades. As constituted in the past, the grammar schools have maintained eight grades, requiring eight years, under normal conditions, for a pupil to finish and prepare for the high school.

The junior high school, so far as it can be applied through the establishment of only one school as a test of the system, contemplates taking two years—the seventh and eighth grades—from the public school and the Freshman year, or ninth grade, from the high school, and constituting the junior high school.

Under this plan there will remain, in those districts affected by the plan, a six-year course in the grammar schools, three in the junior high school, and three in the high school. In the number of years required to finish the public-school system from the kindergarten to the last year of the high school there will be no difference. The difference is in the system of treatment of students and in the arrangement of the public-school course along scientific and democratic lines.

The idea is by no means local, nor is it entirely new, for several of the larger cities have experimented in the idea; and there is a constant veering toward the plan. Boston, Cleveland, San Francisco, Los Angeles, are a few of the larger cities that have undertaken the plan, and in every instance it has been found that the rearrangement has been conducive to greater attendance as well as to greater preparation for the child's life-work.

Educational work along the lines of the junior high school among the superintendents in St. Louis and in other cities had been carried on by Ben Blewett, St. Louis superintendent of instruction. Since his recent death the propaganda has been carried on by his successor, Dr. J. W. Withers, with even more fervor, if that has been possible.

The idea on which the junior high-school theory is based is especially applicable to industrial centers, but it is by no means confined to those centers. But since all of the larger cities are industrial centers, the plans worked out have been in contemplation of industrial conditions. It means to build up a condition in consonance with the growth of the normal child, to supplement the desires of the child affecting his after-life rather than to force him to accept a curriculum whether or not it appeals to him.

Dr. Withers, taking the same view of the matter that has been taken by leading educators throughout America and Europe, believes that the public schools should provide an educational system that goes along with the child and does not run counter to him. It is not only conducive to greater interest in the school work, but also, as shown from the records in other cities that

have tried out the plan, it increases the length of the time that a child will attend school.

With the adolescent period, from twelve to fourteen years, the child's views change, and he begins thinking more of equipment for life-work. Under the old system he has had no opportunity under which he or she might study with a view to specifically fitting himself so as to better qualify for some vocation. The new arrangement will enable the child to think exactly along the lines of preparation for life. It will enable him to find himself, and thereby better to equip himself for work before he leaves the public school.

Under the educational and labor laws of most states, a child must remain in school until he is fourteen years of age before he can go out for work. In some it is sixteen. This is about the age when the vast majority of them in the past have completed the grade schools, and with that change from the lower to the high school there has been an unsettlement in the mind of the child. He is at the age at which he might find work, and in thousands of instances he has been permitted by his parents, even where the parent did not need the support of the child, to go to work sooner than necessary. He also has gone to work earlier than would have been necessary if the course of study had been so arranged as to appeal to the child rather than to create the chasm between the two branches of the school system.

The junior high-school plan is explained on the basis that, if the child is interested in the intermediate work before the time arrives for him to change schools, he will not leave when he has completed the eighth grade, but will continue at least until the junior high-school course is completed. That will give him one year more of work. But surveys made by various educational departments throughout the country have shown that the percentages of increase in attendance in the high schools, where the junior high-school work has been inaugurated, has been phenomenal.

Almost without exception the child interested in work more to his liking, as a result of the junior high-school work, remains in school to the completion of the ninth-year work to a larger degree than he did prior to the installation of the new system. A materially larger percentage, also, interested in the work, and missing the great change from the common- to the high-school course, enters the senior high school and continues the line of work started in the junior high school.

In the latter school the boy or girl has an opportunity to find himself or herself. There is an opportunity for vocational research, and the child is able thus to experiment along lines that appeal to him. . . . . Then when he does leave school and go to work, he has broader fundamental knowledge of the work in which he engages, and is thus able to make more rapid progress. At the same time he has advanced in vocational knowledge, and also has acquired more of what the teachers call cultural knowledge.

St. Louis' venture is along the line of experimentation. It will not be inaugurated throughout the city, but in certain districts where congested

high-school buildings make it imperative that some relief be afforded. At the same time that the relief is afforded, through the purchase of grounds and school buildings which have been used for vocational work, it enabled Dr. Withers and the Board of Education to try out the plan that has been successful in Rochester, Cleveland, Boston, Columbus, and possibly one hundred other cities of the country.

Chicago Schools

This is not an effort to chronicle all that has happened in the schools of Chicago during the summer. The mayor's new board is seated and doing business. There is a new business manager and a new attorney. The statistician of the old board, dismissed by the president of that board, is back without a title. Policemen have been on guard before and after meetings. There have been bitter accusations and counter-accusations. It is safe to say that the board does not enjoy public confidence. It is correct to say that the old board did not. It is to be hoped that the new board will gain public confidence. In the meantime it has much to learn about schools.

Superintendent Shoop was re-elected by both boards for a period of four years. Under the new law he has some powers. He made an effort in his nominations to the new board to bring about a reorganization of his official family.

One large and notable advance which he recommends is the creation of a department to be known as the "department of educational standards, measurements, and statistics." This is to be in charge of an assistant superintendent and is to undertake, if the new board permits its organization, a series of new functions, such as renovating the antiquated record system and studying the curriculum and the results of school work. Chicago will, it is to be hoped, join the fifteen or twenty cities which have bureaus of statistical study. This is a move in the direction of a solution of some of Chicago's school problems. Up to date no one has known at the board rooms whether the rate of promotion in Chicago is good, bad, indifferent, abnormal, or peculiar. There is promise in this new department of a new kind of discussion. The board still has the matter under consideration as the *Journal* goes to press.

Wisconsin Goes Astray

We venture the prophecy that Wisconsin will bitterly regret this legislation. It is un-American, undemocratic, unwise, and unheedful of a great deal of experience. Germany has tried the experiment of dividing her schools and her people, and we are as a nation committed to utter and relentless opposition to the caste system fostered by any such scheme. If the head of a committee of the manufacturers' association believes that it is possible to commit a great commonwealth like Wisconsin for any great length of time to this kind of doctrine, it is our belief that he is ignorant of history, school organization, and practical democracy. He has expressed his views in the pages of this *Journal*, because it has been our policy that all comers should be heard. Fortunately the state of Illinois would not listen to his theory or his proposals for legislation. That Wisconsin has acted on his teachings is a social phenomenon difficult to understand when one crosses the southern boundary of the state. In Illinois the teachers' association killed a proposal for a dual school system and is sure to do the same again, if need arises. Illinois is in this matter in agreement with the majority of the other states. Wisconsin will some day come back. We shall welcome her in the name of a harmonious American policy of a larger education for all.

In the meantime it is our sad duty to record as news Wisconsin's departure from the path of simple American democracy. The following paragraphs from the bill are now the law:

3. Said board: (1) Shall have control over all state aid given under sections 553p-1 to 553p-15, inclusive, and section 20.33, of the statutes; (2) shall meet quarterly and at such other times as may be found necessary; (3) shall elect its own officers; (4) shall report biennially; (5) may employ a director of vocational education and assistants for the development and supervision of the work of industrial education provided for in this act, and all accounts for such salaries shall be certified by the secretary of said board to the secretary of state; (6) shall inaugurate and determine the organization, plans, scope, and development of industrial education in the state.

4. The provisions of the Act of Congress, approved February 23, 1917 (Public No. 347, 64th Congress), entitled "An Act to provide for the promotion of vocational education; to provide for co-operation with the states in the promotion of such education in agriculture and the trades and industries; to provide for co-operation with the states in the preparation of teachers of vocational subjects; and to appropriate money and regulate its expenditure," are

hereby accepted. The State Board of Industrial Education is designated as the board for the state of Wisconsin to co-operate with the Federal Board of Vocational Education in the execution of the provisions of the United States act and is hereby empowered with full authority so to co-operate. The state treasurer is hereby designated custodian of all funds allotted to this state from the appropriations made by said Act, and he shall receive and provide for the proper custody and disbursement of the same in accordance with said Act.

Section 553p-2. 1. Schools created under sections 553p-1 to 553p-15, inclusive, shall be known as vocational schools. The laws relating to agricultural schools and the Platteville mining trade school shall remain unaffected by said sections.

2. All positions except that of director of vocational education shall be filled by civil service examination as provided by sections 990-1 to 990-32, inclusive.

Section 553p-4. 1. The local board of industrial education of every city, village, or town shall report to the common council, or in case of cities having commission form of government to the commission, or to the village or town clerk at or before the first day of September in each year, the amount of money required for the next fiscal year for the support of all the schools established or to be established under sections 553p-1 to 553p-15, inclusive, in said city, village, or town, and for the purchase of necessary additions to school sites, building operations, fixtures, and supplies.

Denver Recall

Denver has gone to the root of its school troubles and has by an exercise of the "recall" removed from office those who attempted to subordinate the schools to politics. Last May enough new members were elected to the Board of Education to constitute a majority. On August first the task was completed. *The Rocky Mountain News*, of that date, printed the following editorial comment:

In the first place, the result routed from the Board two men wholly unfit for the positions, who had no conception of their responsibilities to the public, who had entered into a low-down deal to use the public schools to advance their own personal and political interests, and who had attempted to clamp upon the taxpayers and teachers an outworn method of management that had brought the educational system to a low ebb and left school buildings dangerous to life and health.

With another member, who secured a temporary respite by clinging to the horns of the judicial altar, they conspired to depose the superintendent of instruction, for no other reason than that he refused to be a party to their schemes and insisted upon conducting school affairs on a businesslike, above-

board manner. The triumvirate, that has been broken on the wheel of public resentment, engaged Superintendent Cole in the mistaken belief that he would be its tool after his election. When they discovered their mistake, they used illegal methods to get rid of him. But, fortunately for the educational system, the people became aware of what was going on in the Board and took the first opportunity to punish the guilty ones.

A responsible, reputable Board of Education is now in control of school affairs in this city for the first time in a number of years.

This news item prompts a repetition of the comment made in this *Journal* after the May election. A strong, straight superintendent can win even in a bitter political fight if necessary, because the people want good schools and will in the long run get them.

The following news item appeared in a Pittsburgh paper on Tuesday:

School Reforms

A school where there are no textbooks, no lessons assigned, no home study, no teaching of the "Three R's" as formal subjects, was advocated by Dr. J. L. Meriam, of the Teachers' College of the University of Missouri, in the first of a series of lectures at the University of Pittsburgh yesterday. His subject was "Education for Adulthood and Efficiency in Childhood." He said in part:

"There is no reason for a textbook in geography in the fourth grade, for example. Textbooks are a great nuisance and a very great waste of money. The taxpayers should come down on all fours for this waste in textbooks. When the teacher assigns a lesson, she assumes a child won't work unless he is made to work. There is too much lugging of books to and from school. They are seldom studied at home.

"School environment is made by adults without due consideration for boys and girls. Outside, school boys and girls are extremely active. They are not permitted to be in school. The repression of the school is the depression of the boy and girl.

"The school desk is out of place in school, where the child should be active. It is as much out of place in the school as it would be in the home. No parent would permit the school desk to be brought into the living room at home and compel the boy or girl to sit at it for long periods of time."

The editorial writer saw it and on Wednesday contributed his views as follows:

If only some of the ideas of modern educators could be carried out, instead of having their sweetness wasted on the desert air, this would be a happier world for the small boy. One lecturer declares grammar should be dropped

from the curriculum. Another advocates go-as-you-please spelling for all. A third believes no restraint should be placed upon little pupils in the classroom, but would have them converse or play as suits their inclination. A University of Missouri professor has come all the way to Pittsburgh to attack the use of textbooks in school. "There is no reason for a textbook in geography in the fourth grade, for example. Textbooks are a great nuisance and waste of money. The taxpayers should come down on all fours for this waste in textbooks."

Socrates, it is true, and many of the world's greatest educators, taught without books. Pupils simply sat at their feet and listened to the flow of wisdom. Philosophy particularly lends itself to this mode of instruction. But every teacher is not a Socrates. Textbooks really are needed more by the teachers than by the scholars, but it would be interesting to know how even the latter could progress in such a subject as arithmetic, for instance, without a printed guide for reference. It is as true today as when it was spoken that there is no royal road to learning. Most of the "short cuts" that seem so alluring turn out to be nothing of the kind. No modern devices can make the gaining of a solid education anything but good, hard, honest work. It need not be unpleasant work. The mind no more than the body can be trained and made fit for the battle of life without strenuous exercise. "Textbooks a great nuisance." So are schools, from the average youngster's viewpoint. We have not yet heard a suggestion for their abandonment, but that doubtless will be the next thing on the program.

Perhaps the editor has made further comment unnecessary. One is tempted, however, to call attention once more to the fact that the textbookless school exists in Europe. There the teacher lectures even to little children. American schools have used books. From the first American schools have been reading schools. The reason for this is that the Puritans thought—and quite properly as the event shows—that those who read for themselves will be independent in forming opinions. To be sure, textbooks may be abused, but so may the English language.

AN OUTLINE OF THE COURSE IN GEOGRAPHY IN THE UNIVERSITY ELEMENTARY SCHOOL

Prepared by the Teachers of Geography:
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INTRODUCTORY STATEMENT

Geography as a differentiated subject is not taught below the fourth grade. The course as here shown, however, presupposes the teaching in the lower grades of subject-matter in which there is much geographical content. Especially in the courses in history, community life and civics, natural science, and the arts, in the kindergarten and the first three grades there is considerable subject-matter which, if isolated, would be termed geography. A brief summary of this introductory material, so far as it bears on geography, is here given.

In the kindergarten a beginning is made in the study of the activities of the home and the immediate community. The study is, of course, informal, but it helps to organize the children's home and neighborhood experience. An important project is the construction with paper and cardboard of a community with its streets and walks, houses, stores, and other buildings, delivery wagons, and street cars.

In the first grade there is geographical significance in the study of farm activities. The children use a large sand-table, on which they represent a farm with its fields, woods, pastures, buildings, animals, and the people engaged in their many kinds of work. This representation is the result of much recalling and recounting of experiences on the farm and of many discussions which lead to the portrayal of that which is typical.

Later in this year attention is focused on Indian life as a kind of community life very different from our own. The more primitive life is easier for little children to understand. The relation

of effect to cause is more direct and immediate. The topics given special consideration are the providing and preparing of food, clothing, and shelter, and ways of getting about. These ideas form an important part of the background for the later more formal study of the relation of a community to its geographical environment.

In the second grade shepherd life is an important unit of study. The children carry on in a very simple way such activities as spinning, dyeing, and weaving of wool. They invent again some improvements in processes. They represent on the large sand-table the typical occupations of a shepherd people.

Here, as in other grades, the studies in natural science lead to much of geographical significance: for example, an acquaintance with soil and plants as a result of working in the garden, a familiarity with some animals and birds through the care of pets, a realization of changes of temperature and weather through the keeping of records, an acquaintance with seeds and stones through making collections, and early ideas of maps through the drawing of plans of projects to be carried out in the classrooms and on the school grounds.

The third-grade children study the Vikings as a people that developed trade and transportation overseas. By means of pictures and descriptions some idea is given of the region in which the Vikings lived—a rugged land, cold and bleak in winter, with a wild rocky coast fringed with fjords—and of the experiences of the people on their long voyages of exploration, trade, and war. They were less directly dependent upon nature than the hunter and the shepherd.

In the second half of this year a study of local history and geography is made. Chicago was established as a trading and military post (Fort Dearborn) at the mouth of the Chicago river. A few miles up the river was a short, easy portage to the Mississippi waters. Chicago was easy of access from all directions. The early settlement was on the low, swampy land near the river. The village grew. It had to lay out streets, light them, and eventually raise and pave them. It had to provide an adequate and safe water supply and a sewerage system. It had to straighten

and deepen its river and to build docks and bridges. As the city grew, more adequate transportation had to be provided. Better protection against fires was organized. Schools were established. More and more did the surrounding country send its products to the city to be manufactured and sent back in their new form. In this study of Chicago, the children get their information from reading, from pictures, from class discussions, and from sand-table relief maps. They organize it through discussion, writing, drawing, modeling, and construction. No study of wall- or book-maps is made, although simple charts and maps of the Chicago region are occasionally used. However, the children become sufficiently acquainted with maps to make their use in the fourth grade present no serious difficulty.

For a fuller outline of certain phases of this introductory work, the reader is referred to "The Course in Community Life, History, and Civics of the University Elementary School," published in the February, March, April, and May numbers of the *Elementary School Journal* for the current year. Other phases will be described in forthcoming outlines of the courses in natural science and the fine and industrial arts.

GRADE 4B

From the earlier work the children have gained many conceptions of the sources of the home food supply, of means of travel and transportation, of various kinds of shelter, of agricultural and pastoral life, of topographic features, and of some of the conditions which have contributed to Chicago's growth. They have read or heard many stories of people of other lands. Many of these children have had wide travel experiences. Effort is now made to gather up and to organize this geographic knowledge, and to build up the idea of the earth as the home of peoples having different environments and hence different occupations and modes of living.

Aims.—

1. To show the earth as the home of many peoples.

2. To teach something of the conditions under which these people live.

3. To make the pupil familiar with the globe as the symbol of the earth.

4. To have the pupil begin to use the globe and maps intelligently.

5. To extend his idea of the continent upon which he lives.

Subject-matter and method.—The children enter school in the fall eager to tell about the new experiences of the summer, and especially about the places they have visited. During the first two or three geography periods they are given opportunity to describe these places and to show the pictures they have brought back. As the pictures are discussed, the children are asked what other places they are reminded of by these scenes. The countries and peoples of which they have heard in the preceding grades are recalled. The mountains may remind them of Norway, for instance, and that country is then located on the large suspended relief globe. Their curiosity has already been aroused by this globe and they become much interested in it. The next question is, "Where are we?" and Chicago is located. "What ocean must we cross to come from Norway to Chicago?" and the Atlantic is shown on the globe. Norway is redescribed to make the children feel that this small spot stands for mountains, glaciers, fjords, forests, and people busied in various pursuits. In the same way many other familiar places are located upon the globe.

This introductory work in geography is carried on in the most informal way, with both teacher and children entering into discussions of pictures and stories, and endeavoring to interpret pictures, to introduce bits of personal experience, and to enrich the fund of information. The children's enthusiasm for books at this age when they are able to read with some fluency, together with their curiosity about other peoples, leads them to bring in much that may be read and discussed in class. Stories are brought in first, but later facts are gathered merely for information. Descriptions of many regions new to the children add to their growing conception of the world as a whole. All the illustrative material that is available is used. This material consists largely of pictures and exhibits from the school .useum. Two or three trips are taken to the Field Museum. All the newly gained geographic facts are related to the globe.

As the various regions are located upon the globe, the continents come to mean great land areas on the earth's surface which are

the scenes of many familiar stories. In discussing the size and shape of the continents, the pupils find a need for a larger vocabulary and learn the new terms peninsula, cape, bay, gulf, strait, and isthmus as they are needed.

As the idea of the earth is expanding through the study of the globe, the children find in their study of Greek history that the ancient peoples conceived the earth as a plain. This definitely raises the question, "How do we know the shape of the earth?" The children already have some vague notions of the proofs of rotundity, and their attention is turned for a time to the stories of Columbus, Magellan, and Drake. As the adventures of these navigators are read, the children trace their voyages upon the globe. These voyages are compared with modern routes of travel around the earth. The children procure railway and steamship guides, discuss the routes, trace them upon the globe, note the time taken, and compare the experiences of modern travel with those of the early explorers. They find that these journeys have been made chiefly in east and west directions. The questions arises, "Why have none been made north and south?" The reply that "it is too cold" leads naturally to the discussion of temperature changes from north to south, as evidenced by the changes in the amount of snow and ice, in vegetation, and in the numbers and occupations of the people. The children express this gradual change in temperature by shading a blackboard globe in varying intensities of one color or by blending colors. The position of the continents is noted with regard to the temperature areas. The children sum up the conditions of life in these various regions and make a simple outline for such a study. This one is typical:

1. Vegetation
   - Kinds
   - Uses
2. Animals
   - Kinds
   - Uses
3. People
   - How they live
   - Appearance
   - Homes
   - Occupations

About eight weeks is given to this introductory study.

North America.—The study of North America helps the children further to orient themselves, this time with regard to the continent upon which they live. It is introduced by a succession of pictures of significant regions. These pictures are grouped to show scenes typical of the various parts of the country. The children see, for example, the rocky New England coast and the fishing fleet, some typical parts of the Appalachian Highland, the farms of the rolling prairie, cattle grazing on the plains, the high peaks of the Rockies, something of the life in the mining camps, the desert of the Great Basin, the big trees of the Sierras, the orange groves of California, and the cotton fields of the South. The presentation of this material covers several days. As the pictures are shown, the children locate the regions upon the globe, and upon the large relief model of North America. Many of the pictures are projected upon the screen. The children are encouraged to discuss them freely, to ask questions, to tell "what that man is doing," to say, "I have been there," and so on. They are encouraged to tell what place they would like most to visit and why, and to describe some of these places in writing and in sketches. They discuss both orally and in writing such points as "The Differences the Pictures Showed between the Eastern and the Western Mountains." In these studies the children are led to notice especially the changes in climate as evidenced by the vegetation.

At the close of this period of work the question is asked informally, "What have all of these pictures meant to you?" Among the replies, these are found: "I never knew the people were doing so many different kinds of work in North America," "I never knew North America was so big." In gathering up all the new ideas the children have gained of North America one large question is formulated in which the rest of the study centers—"Why has North America so many kinds of places and so many kinds of workers?"

The first answer is, "Because of its great size and its different kinds of climate." From the globe the children discuss the time consumed in journeys across the continent. They see that the continent stretches almost from the North Pole to the equator.

In the search for another reason the children gather about the large relief map of North America which is placed upon the

floor. They notice the eastern and western highlands bounding the great trough or central valley. The two highlands are compared as to trend, length, width, height, and general character. The children note the parallel ridges of the Appalachians. They see that the Rocky Mountains are separated from the Sierras by the Great Basin. They trace the Cascade and the Coast ranges. In doing this, they are led to see that the topography is another force in determining the variety of places and kinds of work.

Having found two reasons, the children search for another. They recall regions of forests, of grassy plains, and of deserts and discover that there are variations in rainfall. They find out from maps and pictures where there is little precipitation, where there is a great deal, and where there is a moderate amount.

The question now naturally arises, "What are all these places good for?" and the children begin to locate the important industries upon the continent. Farming receives first attention. They know that some of the best farm lands are in river valleys. Several of the great rivers of North America are studied to find which basins offer the best opportunities for farming.

The following questions are considered:

1. What part is the main stream and what its most important tributaries?

2. Where do these streams rise and into what does the main stream empty?

3. What is the climate of the region through which this stream flows?

4. Does the climate vary in the different parts of the basin and, if so, how does this affect farming?

Some of the rivers studied in this way are the Mississippi, Missouri, St. Lawrence, Columbia, Sacramento and San Joaquin, Colorado, Mackenzie, and Yukon. The pupils find what in a large way are the most important crops of different parts of the continent. This establishes the idea of the wheat, corn, and cotton lands. The other important industries are indicated on the large relief map as their location is learned. The detailed study of these industries is postponed until the second semester.

In the lower grades the children become familiar gradually with charts and simple maps. The use of maps in this grade occasions very little difficulty.

During this work there is much opportunity for expression in oral and written composition, by drawing pictures, sketches, and diagrams, and by sand-modeling.

This study of North America extends over about nine weeks.

Standards of attainment.—

1. Ability to locate upon the globe and maps the continents, oceans, islands, and the most important countries and cities.

2. The recognition of such physical features as peninsula, strait, gulf, and mountain.

3. Knowledge of the conditions of life in the warm, cold, and temperate zones.

4. Knowledge of the large relief features of North America and the main facts concerning climate, distribution of vegetation, and distribution of the industries.

Time required.—Five half-hour periods a week are given to geography with an occasional assignment for home study.

Texts.—

Brigham and McFarlane, *Essentials of Geography*, First Book.
Carpenter, *North America.*

GRADE 4A

THE UNITED STATES

The pupils have studied general globe geography and North America the first half of the year and are now ready to make a detailed study of the United States.

Aims.—

1. To develop the conception of the United States as the home of a nation of people engaged in many kinds of work, in which every citizen should share.

2. To give an idea of the processes used in some of the more important industries.

3. To develop an understanding of the connection between an industry and the conditions which influence it.

4. To develop a feeling for the dignity of labor.

5. To teach the "place geography" of the United States.

6. To develop a feeling of need for books other than the text-book.

Subject-matter and method.—The course in the geography of the United States is mainly a study of the leading industries in this country. The children are told that they may soon represent on a large sand-table map of the United States what they find out about each.

As a preparation for the industrial studies, a short time is spent on such topics as the position, climate, and surface features. This is both in review and in extension of the study of these topics in the preceding semester. With physical maps before them, the children observe that the United States occupies much of the southern half of the continent. They note the relative positions of the other continents, especially Europe, in which they are just now interested through their study of Greek and Roman history. They locate the United States, not by degrees of latitude, but with reference to its relative nearness to the equator. They volunteer the information that it has a temperate climate. They are asked if this temperate climate prevails everywhere throughout the country. As a result of their travels and of their study of various regions in the previous grades, they are able to give instances of kinds of climate found in the different parts. To fix these impressions, pictures of the regions are again shown, but this time with a simple explanation of the causes; e.g., in the northwestern part, winds blow over the land from the sea bringing warmth and moisture, but, because of the height and consequent cold of the mountains, moisture falls on the western side of the mountains, leaving the eastern side dry (again the pictures are referred to as an illustration of the fact); in the eastern half of the country there is abundant moisture, but it is brought by the south and the southwest winds, and in the central part by winds from the Gulf of Mexico. No detailed explanations are given of the climatic features. It is sufficient if the reasons for the big contrasts are seen and the significance of the resulting vegetation is observed from the pictures.

The Great Lakes are located in relation to the adjoining states; they are traced on paper to get the general outline; paper cuttings

are made by the teacher and placed before the class so that the outline may be more distinct. After tracing, cutting, and drawing, the pupils have a much clearer picture of the general outline of the Great Lakes.

The children first try to draw, in small sand pans, the outline of the United States. Until they are able to draw it from memory, they refer to the wall-map. Then they take up the surface features. Such facts as the relative heights of the Rocky Mountain Highland and the Appalachian Highland, and the location of the Great Basin, smaller coastal ranges, the eastern coastal plain, and the Piedmont Plateau are observed and discussed. The extent of the Mississippi Basin and the gradual slope of the Great Plains toward the Rocky Mountains are noted, so that the relative areas may be correctly shown in the modeling. The drainage systems are worked out in connection with a study of the great slopes. For instance, the important rivers which have their sources in the Rocky Mountains are located, and their general directions discussed.

The pupils are now ready to begin work on the sand-table map. The table we use for this work is 5×7 feet. They make the model of soil, in order to show the more important farm products actually growing in the different regions. First, the general outline of the country is formed. Usually a group of six children work at a time. Then others take their places and perhaps criticize some part of the outline not accurately portrayed and remodel it. All this representation is done without the aid of the wall-map, except to verify the correctness of the modeling. After the general shape is approved by all the class, the surface features are modeled. This is the test of the mapwork. Of course no detailed or scientific results are expected, but a knowledge of the proportions of the surface features is required, such as the slope of the Piedmont in relation to the Appalachian Mountains, the height of the Appalachian Mountains compared with that of the Rockies, the relative location of the smaller western ranges, and the location of the Great Lakes in relation to the Mississippi Basin. Small rocks are brought in to build up the Rocky Mountains and salt is sifted on the peaks to represent snow. Strips of clay are used to bank in the coasts and to form the basins of the Great Lakes.

The Mississippi is represented by a narrow strip of silver paper; the other rivers are shown by indentations in the soil.

After the model is completed, it is used in various ways in the drill in place geography. A child is asked to travel from the Atlantic Coast to the Pacific, naming the various surface features over which he passes in taking such a trip. He goes to the sand table and points out each feature as he names it. Another pupil is asked to take a trip through the Great Lakes; another is asked to locate and name the different rivers indicated on the map.

The pupils are now ready to take up the seven leading industries: agriculture, grazing, lumbering, mining, fishing, manufacturing, and commerce.

Under agriculture, the principal crops studied are wheat, corn, cotton, tobacco, rice, and sugar cane. In approaching the study of wheat, the children discuss its various uses. After they have named as many of the wheat products as they know, an exhibit of wheat products is placed before them. The importance of wheat as a food is discussed and the question arises, "How much wheat does the United States raise?" They read in Allen's *Industrial Studies of the United States* to find the answer to this question. "What states raise the most wheat?" After they find the answer to this question, they locate the states on the wall-map or in their atlases. Next, using crayolas, each pupil colors the wheat states on an outline map of the United States. Usually at this point some pupils volunteer, "I know how to show on the soil map where wheat is raised," and before long all are able to locate the wheat areas with no assistance from wall-map or geography text.

Great wheat farms are described next, together with the method of planting and cultivating wheat. Since different members of the class have visited wheat farms, they are able to give first-hand information that is much more interesting than that gained from books. The points brought out are: preparation of the ground for planting, time of planting, harvesting, threshing, and milling. Emphasis is placed on the improvements which have been made in the machinery used in the raising of wheat, such as the invention of the drill, the modern reaper, the harvester, and the thresher.

For instance, the pupils discuss the means by which the farmers cut their grain before the modern reaper was invented, and are shown pictures of the old-fashioned sickle, the grain cradle, and the mower. The size of the farms, as affected by the invention of the reaper, is brought out, and, if possible, miniature models of the reaper, thresher, and harvester are shown to the class.

The class compares the old handmill with the modern flour-mill. Since the children know the important wheat states, they can see the reason for the location of the important milling centers, which they indicate on the map. As a summing up of this study, the children show wheat in the soil map in the regions where it is grown.

The other agricultural products are taken up in a similar way. Sometimes the seeds are planted at the beginning of the study or as soon as the class learns in what regions the products are most abundant. Thus the plants come up before the study is finished, and the children can observe their growth, write compositions about them, and draw them. Some of the topics about which compositions may be written, after observing the plants in the sand table, are: wheat, corn, peanuts, cotton, rice, tobacco.

Lumbering.—This type study of lumbering indicates in detail the method followed in much of the geography study of Grade 4A.

As a preparation for the study of lumbering, an effort is made to give the pupils a general idea of forestry. The value of the forest is discussed, especially as a source of fuel and lumber, as a means of protection against floods, winds, snowslides and moving sand, and as an element of beauty in the landscape. The children are encouraged to give personal experiences which illustrate any of these points. It is not necessary for the teacher to give all of this information or for the children to get it by reading; most of it can be brought out by discussion.

The forests in our country are next considered, and especially the size of the forested areas when the early settlers came to America, as contrasted with what we now have. This information is not given in terms of acres, but of the fractional amount left. A chart may be used to show by colors the relative amounts of forest land. Because of the waste of timber the children are told

of the law passed by Congress which authorizes the president to set aside forest land as public reservations and by virtue of which we have now about 163 national forests. The large map of the national forests is examined.

At the beginning of this study the children write letters to the Bureau of Forestry to ask for maps and booklets. Besides adding to the general interest in forestry, this provides an excellent motive for practice in letter-writing. After each pupil has written his letter, a committee is appointed from the class to select the best and neatest copy to send to Washington. Usually three maps and charts are sent in response, one of the national forests, one showing the great forests of the United States and the kinds of trees in each, and a third showing the different kinds of woods in each state, the selling price of the timber, and the number of mills in each state. These are placed on the wall to be used throughout the study.

Enemies of the forest are studied, such as forest fires, grazing animals, forest insects, snow, wind, and fungus diseases. The life of a forest ranger is taken up. Price's *The Land We Live In* gives a most interesting story of a forest ranger and his work, which is to provide for the best use of the forest, to protect it from fires, overgrazing, insects, and diseases, and to provide the best growing conditions for every tree, in order to insure a supply of timber.

The next topic is the great forest regions of the United States. There are to be found five great forests, the northern, central, southern, Rocky Mountain, and Pacific Coast. These the children indicate by color on outline maps, after locating them on the wall-map. Distinguishing characteristics of each forest region are brought out: for example, in the Rocky Mountain and Pacific Coast forests there are few trees besides the conifers and evergreens; in the western forests the trees stand so far apart that the crowns do not often touch, while in the eastern the trees usually stand close together. Some of the important trees in each forest are taken up, and their appearance and the uses of their woods are discussed. Specimens of woods are brought from the museum or collected by the children, and the characteristics are observed. It is, of course, better for the children to make these collections for themselves, as

their interest in the work is stimulated in proportion to their own efforts to contribute to it. The children are asked to bring to class any magazines having pictures or descriptions of forests or lumbering operations. Among the most important facts learned in the study of lumbering are the uses to which certain woods are put: spruce for paper, oak for furniture, cypress for shingles, hickory for wheels, Douglas fir for ties and telegraph poles, pine for building, and birch, beech, and maple for flooring. Large pictures of the trees are placed before the class, so the children may associate the appearance of the tree itself (its shape, height, and foliage) with its wood. An excursion is made to Washington and Jackson parks to see the trees.

The next step is to study the processes by which these trees are taken from the forest to the mills. Logging in the north is discussed first. For this the following texts are used:

Carpenter's *Geographical Reader of North America*
Carpenter's *How the World is Housed*
Allen's *Industrial Studies of the United States*

Too much emphasis cannot be placed on the use of pictures in this part of the study, especially those showing the camp, the cutting of the trees, and the hauling of the logs to the mills to be sawed into lumber. As contrasted with logging in the North, a lumber camp in the South or Northwest is described.

After the study of the processes is finished, the important cities noted as shipping centers for lumber are located on the wall-map and then indicated on the small outline maps.

For this unit of work the children make "Lumber Books," designing the covers and drawing their illustrations in the art periods. Some of these illustrations may be: A Logging Camp in the North, A Logging Scene in the South, A Forest Ranger, A Flume. For these books the children collect pictures to illustrate their compositions and copy one or two of the simpler charts.

These are the topics upon which they write compositions for the books:

The Uses of the Forest
Enemies of the Forest
The National Forests
A Forest Ranger

The Great Forests of the United States
Different Woods
Logging in the North
Logging in the Northwest
Logging in the South
A Flume

As a summary, they may make a scene on a sand-table showing logging operations in any one of the regions studied.

Other industries.—The method used in teaching the other industries is similar to that used in the case of agriculture and lumbering, and so only the concrete representations need be noted here.

Small pieces of iron ore are used to indicate on the soil map the iron mining of the Lake Superior region and Alabama; pieces of coal for the mines of the Appalachian Mountains, Indiana, and Illinois; and a small toy freight train, loaded with coal, is shown on its way from Pennsylvania to New York. Gold mining is shown in California and Colorado; and silver, in Nevada, Colorado, and Utah.

To show fishing, a small basket of toy fish is placed on the Cape Cod coast; and a small toy salmon, on the Northwestern coast.

To show shipping, miniature boats are made to sail on the oceans, the Gulf of Mexico, and the Great Lakes. Some are entering New York Harbor, others are taking on cotton at New Orleans, and still others are sailing into port through the Golden Gate. Small barges full of coal and iron are plying the Great Lakes. The railroads are shown by tiny trains.

After the industries are studied, the children represent the cities of the United States on the sand-table. Each child is given a city to indicate in any way he chooses, provided his representation shows an important feature for which that city is known. He may get his information anywhere he pleases—in his reference textbooks, in the school library, or at home.

TOPICAL OUTLINE

I. Position of United States
  1. In relation to
    a) North America
    b) Oceans
    c) Other continents
  2. Distance from equator and North Pole
    a) Temperate country

II. Surface features and drainage
  1. Surface
    a) Highlands
      (1) Appalachian
      (2) Rocky Mountain
      (3) Comparisons and contrasts
    b) Plains and lowlands
      (1) Great Central Plain
      (2) Coastal plains
    c) Plateaus
      (1) Piedmont
      (2) Great Basin
      (3) Colorado
      (4) Columbia
  2. Drainage
    a) Important rivers
    b) Great Lakes

III. Climate
  1. Affected by
    a) Size
    b) Position
  2. Western United States; affected by westerly winds and topography
  3. Eastern part; moisture from south and southwest winds
  4. Central part; moisture increased from winds from Gulf of Mexico
  5. Dry region
    a) Cause of little rainfall in Great Basin and on plains east of Rockies

IV. Industries
  1. Agriculture
    a) Wheat
      (1) Uses
      (2) Value
      (3) Conditions of growth
      (4) Plowing, harrowing, drilling, harvesting, threshing
      (5) Taken to elevators
        (*a*) Description of elevator
        (*b*) Location of elevators
      (6) Taken to mills
        (*a*) Description of large mill
        (*b*) Milling centers
      (7) Wheat regions
      (8) Important cities in wheat region
      (9) Exporting centers

b) Corn
c) Cotton
d) Tobacco
e) Rice
f) Sugar cane
g) Sugar beets

2. Livestock
   a) Conditions favorable for raising food animals
   b) Regions
   c) Cattle
      (1) Raising of cattle for meat
      (2) Shipping and marketing of products
      (3) Cities important as markets
      (4) Dairying
   d) Sheep
   e) Hogs
3. Fruit-growing
   a) Important fruit regions
   b) Growing and marketing of apples, peaches, grapes, berries, oranges, lemons, grapefruit, pineapples, prunes, olives, figs
4. Lumbering
   a) Uses of the forest
   b) Area of forests in United States at present time
   c) Forest reserves
      (1) What they are
      (2) Location
      (3) Area
      (4) Uses
      (5) Conservation
   d) Enemies of the forest
   e) Forest regions of the United States
      (1) Characteristics of each
      (2) Lumbering methods used in each
   g) Great cities important as shipping centers for lumber
5. Mining
   a) Coal
      (1) Uses
         (*a*) Iron industry
         (*b*) Steam power
         (*c*) Heat
         (*d*) Cooking and lighting
         (*e*) Coal-tar products
      (2) Formation of coal

(3) Kinds
(4) Methods of mining
(5) Coal regions of United States
(6) Important cities in coal regions

b) Iron
(1) Uses
(2) Iron-mining regions
(3) Methods of mining
(4) Transportation of ore
(5) Processes of manufacture
(6) Important iron- and steel-manufacturing cities

c) Copper
(1) Uses and importance
(2) Regions where it is found
(3) Processes of mining and smelting

d) Gold
(1) Discovery
(2) Uses
(3) Value
(4) Regions
(5) Methods of mining
(6) Cities

e) Silver
(1) Uses
(2) Value
(3) Regions
(4) Methods of mining
(5) Cities

6. Fishing
a) Value of our fish catch
b) Methods of fishing in different regions
c) Preparation for market
d) Conservation methods

7. Manufacturing

Through the study of the leading industries, the main facts have been brought out concerning the location and character of the great manufacturing industries.

a) Rank of United States among manufacturing countries of the world. Reasons:
(1) Raw material
(2) Fuel
(3) Enormous capital
(4) Good transportation facilities

b) Great manufacturing centers
c) Manufacturing industries to be further developed in this country

8. Commerce
   a) Domestic
      (1) Facilities for transportation
         (α) Natural waterways; rivers and lakes
         (β) Artificial means
            (i) Railroads; the important classes of products carried by each of our large systems
            (ii) Canals
      (2) Great commercial centers
   b) Foreign
      (1) Facilities for transportation
         (α) Steamship lines
         (β) Panama Canal
         (γ) Extended coast line with good harbors
      (2) Coast cities
      (3) Principal imports
      (4) Principal exports

Standards of attainment.—Progress is made in—

1. Ability to see the dependence of an industry upon eviron-ment.

2. Understanding the reasons for the growth of certain cities.

3. Ability to use reference books, government publications, etc., in collecting data for the study of an industry.

4. Ability to select the important topics in the study of an industry, such as, regions where industry is carried on, process, shipping centers, etc.

Time.—Five thirty-minute periods a week are given to the study of geography besides three study periods a week given to composition work and sand-table construction.

Textbooks.—

Brigham and McFarlane, *Essentials of Geography.* First Book
Allen, *Industrial Studies of the United States*
Carpenter, *Geographical Reader—North America*

Reference books.—

Longmans' Atlas
Tarr and McMurry, *Geography.* First Book

Chamberlain, *How We Are Fed*
———, *How We Are Clothed*
———, *How We Are Sheltered*
———, *How We Travel*
Carpenter, *How the World is Fed*
———, *How the World is Housed*
———, *How the World is Clothed*
Chase and Clow, *Stories of Industry.* Books I and II

MEMORY WORK IN THE GRADES

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A. THE PROBLEM

In studying the memory work which several hundred college students had done while they were in the grades and high school, I found that the amount memorized varied from almost nothing to a vast quantity of selections. In some cases it was a purely disciplinary process, learning a piece by the cram method to be spouted forth on a Friday afternoon, and then tossed into the mental waste-basket to be remembered no more. In the better schools a carefully selected series of things of most worth in their literature lessons was memorized; but so disconnected and unrelated were the selections, and so frequently were they left unused, that few permanent ties of associations were developed; and hence by the time of their college days, most of these selections were past recall, and few, indeed, could repeat a whole selection of any length.

In the days of our fathers, copy-book mottoes and memory gems in spellers and readers were memorized because they seemed valuable to the compiler of the text, and not because the child understood them or appreciated their worth. Later educational opinion asserted that this memoriter process was wrong, and that nothing should be memorized that was not thoroughly understood. At any rate, rational processes superseded the old memoriter practice, now fallen into disrepute, and relatively little memory work has been done in the grades. Present-day opinion is painfully conscious that an irreparable loss has resulted from the failure to store the mind with carefully selected memory materials as a standard of reference for thought and expression of thought. Nearly two decades ago, James called attention to this matter:

> The excesses of old-fashioned verbal memorizing and the immense advantages of object-teaching in the earlier stages of culture have perhaps led those who philosophize about teaching to an unduly strong reaction; and learning

things by heart is now probably somewhat too much despised. For when all is said and done, the fact remains that verbal material is on the whole the handiest and most useful material in which thinking can be carried on. Abstract conceptions are far and away the most economical instruments of thought, and abstract conceptions are fixed and incarnated for us in words. Statistical inquiry would seem to show that as men advance in life they tend to make less and less use of images, and more and more use of words. . . . . I should say, therefore, that constant exercise in verbal memorizing must still be an indispensable feature in all sound education (1, p. 131).[1]

In a recent volume Judd has emphasized this same thought:

We have of late come to regard memory work in the schools as something unworthy of a place of recognition in comparison with reasoning and the higher thought-processes. No one who gives the matter any thought can, however, fail to recognize the fact that the criticism of memory is not based on any real expectation on the part of teachers that students will be able to carry out the higher thought-processes without an appeal to memory. Criticisms of memory are directed, not against memory, but against bad forms of remembering. . . . . If one wishes to have his students flexible and ready in ideas, he must give them that type of memory training which will make them both ready and flexible. The problem of modern teaching is not to discard memory, but rather to train the powers of retention and recall in a better way than formerly. To object to memory is very shortsighted; to improve memory is rational (2, pp. 70–72).

B. PRESENT TENDENCIES IN MEMORY WORK IN THE GRADES

The present trend in courses of study and educational literature places a renewed emphasis on memory work in the grades. In the Grand Rapids course of study in English the following instructions are given concerning the memory work: "Encourage the children to learn the poems they like; there is deep significance in the old-fashioned expression 'learning by heart.'" At the end of the first year "each child ought to know a dozen or more nursery rhymes and three or four other little poems." At the end of the second grade "each child ought to know by heart ten or twelve *Mother Goose* rhymes, two or three of Robert Louis Stevenson's poems, and one or two other favorites." At the end of the third grade "each child ought to know by heart two or three of Robert Louis Stevenson's poems, and one or two other favorites." At the end of the fourth grade "each child ought to know at least two or three short lyrics,

[1] Numbers refer to sources given in bibliography.

one or two ballads, entirely or in part, and many short passages which the pupils have found in their reading, and which have given pleasure either on account of a noble sentiment, a beautiful picture, or a musical combination of words." At the end of the fifth grade "each child ought to know at least two or three short lyrics and one or two ballads, entirely or in part." At the end of the sixth grade "each pupil ought to have added to his poems learned by heart one or two lyrics and two or three ballads, entirely or in part." At the end of the seventh grade "each pupil ought to know by heart several short passages which the pupils have found in their reading, and which have given pleasure, either on account of a noble sentiment, or a musical combination of words." At the end of the eighth grade "each pupil ought to know by heart one or two of the selections from Shakespeare, beautiful passages from *Snow-Bound* and the *Vision of Sir Launfal*, as well as a few of the lyrics and ballads which are practically memorized in the intensive class-study. The boys, especially, will find pleasure in reciting orations such as 'Spartacus,' 'King Philip,' or the 'Speech of Patrick Henry'" (3).

In the Ethical Culture School course of study in English the following excerpts may be noted. After describing the literary works to be covered in the sixth grade, the bulletin states that "there is a good deal of memorizing from all these sources—for memori[illegible]z is another habit which must be especially cultivated at this time. And it may be tardily mentioned here that throughout the grades memorizing of a considerable body of songs for festivals, assemblies, and choruses is systematically undertaken, so that they accumulate and keep alive a large repertoire of patriotic, festal, and seasonal songs, not to mention classic settings of some of the greatest English lyrics" (4, p. 26). In the eighth grade "copious selections are also made from the prose as well as from the poetry studied, for memorizing. If this capacity is not kept alive at this time, it will be found to deteriorate rather rapidly in the grades ahead" (4, p. 34). In discussing the unfortunate influence of the College Entrance Board upon the English work in secondary schools, the bulletin states that books and script have been so urgently demanded as the important end that pupils have remained

barbarians in oral expression, in reading aloud, and in appreciation of vocal values in literature. . . . . Memorizing (a highly important matter) has been neglected (4, p. 37).

The habit of isolated study, the failure to link the old with the new and to reconsider it in new ways with greater maturity of judgment accounts for not a little of the barrenness and scrapiness of literary studies. In pursuance of the same principle of avoiding waste, the importance is recognized of continually recalling and repeating poems and passages which have been memorized. It is to be clearly understood by pupils, as by teachers, that the purpose of memorizing is to make of the passages memorized a *permanent* possession; and that it is to be recalled for any of several purposes (in unexpected tests, for instance), bearing upon content or form. The "snap," that is the perfunctory and undigested memorizing, which is what a teacher commonly gets when it is a mere matter of reciting for the day's mark, is a lamentable and demoralizing squandering of time and energy (4, p. 50).

Although an immense volume of experimental work has been done on memory, very little has been related to the memory of children, and much less has been put into books of method or practice in the grades. Books on pedagogy abound in matters of drill and general method, but one can count on his fingers those texts which plainly state the educational function of memory work in the grades; and in most cases these books are of recent publication. Kendall and Mirick state that "the memorizing of good verse should begin in the first grade and continue through the course. The selections should be made, first, for their intrinsic worth, and secondly, for their beauty and appeal to the particular grade and the individual pupil" (5, p. 52). "It is of primary importance that a pupil understand the thought before beginning to commit a selection to memory. He may not appreciate fully the significance of the passage, but it should convey sense to his intelligence or he should not learn it" (5, p. 53). Chubb states:

The work in memorizing, and the declamation that goes with it, has much value also as a means of confirming the child in correct ways of speaking. But its greatest service is in storing the mind with the priceless treasure of the noblest thoughts and feelings that have been uttered by the race. Especially important is it to make the first impression and memories, which are to impart a tone to one's spiritual system for life, rich and pure enough to outsing all baser and cruder songs, and to set the pitch to character. . . . . On this account we can perform no worthier office for the child than to set singing in its mind, in order to fashion the norm of his taste, poems and pieces selected

with a fine scrupulousness. . . . . In making our selection for memorizing, we may conveniently observe a broad distinction, commonly drawn in German schools, between those first-rate pieces which have upon them the stamp of permanence, that classic quality which fits them to be the "core" of the work, and those less important, quite passable pieces which we touch on lightly and make use of to serve subsidiary ends. The pieces that form our "core" are those that are to be carried forward from grade to grade, to be recalled and reused in new connections, and for comparative purposes, time and time again. To endear by repetition, to accumulate a common stock of old familiar songs that graft themselves deep in the affections and reveal gradually as the child grows, their music and meaning—this is a desideratum of every English course (6, pp. 48–50).

In two recent books Klapper clearly and forcefully presents the vital function of memorization in school work:

A good means of reviewing and applying the masterpiece is to require the children to memorize vital and striking parts. The teacher knows that memorizing literary selections has its educational results: (1) it enriches the vocabulary; (2) it develops a storehouse of beautiful expression; (3) it gives the child a number of lofty sentiments artistically expressed; (4) it leaves the child a permanent store of literary gems which grow in beauty and richness as the mind gains insight and appreciation. . . . . All memorization by pupils should be prompted by an urgent motive. Let the child decide what parts of the masterpiece it wants to memorize. The choice usually falls upon those selections which were studied intensively and appreciatively. The pupils must then be led to feel that effective dramatization of their favorite selections is impossible unless they memorize them (7, p. 199).

In a later volume these principles are more fully treated:

(1) Memorizing gems of literature is a means of enriching the child's limited expressional stock. New words, strong phrases, traditional allusions, and classical expressions are acquired through a content that helps to give them both richer meaning and greater retention. (2) The mere knowledge of literary gems that are memorized is an acquisition that is worth while for its own sake. We must acquaint the child in an informal way with his literary heritage. (3) Memorization of literary gems gives children a permanent possession of sentiments deep in ethical significance and rich in poetic charm, which grow in meaning and beauty with the ever-widening experience of life. (4) But aside from the content aspect of these literary possessions, the child is becoming familiar with language structure that serves as a model for his own modes of expression. The child may not consciously set himself to imitate the selections he memorizes, but they nevertheless have a deep and subtle influence on his linguistic development. (5) The recitation of memorized literary gems

affords the teacher an excellent means of training the pupil in correct enunciation, clear articulation, correct voice control and modulation. (6) Another important gain that follows in the wake of dramatized recitation of memorized selections is increased confidence and more graceful self-expression. These values give the memory gem lesson a definite and undisputed place in every curriculum of English (8, pp. 206 ff.).

C. THE BEARING OF PSYCHOLOGY ON MEMORY WORK

The two factors in the memory process most immediately connected with our problem are retention and learning. Retention is largely a physiological factor depending on the nature of the nervous system, and varies with health and age. About all we can do to improve retentivity is to keep the physical condition up to par. The ability to retain increases as the child matures, and it reaches its maximum between fourteen and twenty years of age. Improvement in memory after adolescence is usually limited to associational, conceptional, and habitual lines.

On the other hand, the possibilities of developing memorial efficiency through better methods of learning are well-nigh unlimited. "The art of remembering," says James, "is the art of *thinking* . . . . when we wish to fix a new thing in either our own mind or a pupil's, our conscious effort should be not so much to *impress* and *retain* it as to *connect* it with something else already there. The connection *is* the thinking; and if we attend clearly to the connection, the connected thing will certainly be likely to remain within recall" (1, p. 143). Things not natively interesting become so when grafted onto things already interesting. Thus James directs teachers to follow this simple program in keeping the attention of the child:

> Begin with the line of his native interests, and offer him objects that have some immediate connection with these. . . . . Next, step by step, connect with these first objects and experiences the later objects and ideas which you wish to instil. Associate the new with the old in some natural and telling way, so that the interest, being shed along from point to point, finally suffuses the entire system of objects of thought (1, pp. 95–96).

The unstable attention of the child wanders at random, at the mercy of the strongest stimuli, because there is no dominant-goal idea to direct the series of shifts. The sustained attention of the

scholar shifts no less readily, but each shift is in a line straight for the goal. There may be tangential movements as association may link up more or less parallel groups, but attention always comes back to the main line of thought, because meaning is found in unfoldment of the problem at hand. Through the use of things or through an active response to situations meaning becomes distinct and coherent.

In the memory process of the child, the capacity to retain and the capacity to learn are likewise the important factors:

> The child's capacity to learn is inferior to that of the adult; but what has once been learned is retained better by children (9, p. 245).
>
> In the interval immediately following memorizing (in the first twenty minutes) children forget more than adults in the same time; then the superiority of the children in native retentiveness appears; and they retain better what outlasts this period. Thus we may state that children receive all impressions and all educational influences with more difficulty than adults. They allow more to escape them in the immediately succeeding period, but retain with greater fidelity all that outlasts the first period of obliviscence (10, p. 91).

The child thinks chiefly in concrete individual imagery, though he can use verbal imagery just as the adult does. The child thinks more slowly and discriminates fewer sense qualities, because his limited experiences have not developed his power to analyze and combine them into a well-organized whole. The adult thinks in terms of verbal images, because he has developed the ability to use class terms instead of particular terms. The percept deals with particular, present things, whereas the concept deals with the understanding of the underlying principle connecting a series of particular things. Because concepts are not localized in particulars, verbal signs are used to give meaning to this class idea or principle. "Since meanings are not themselves tangible things, they must be anchored by attachment to some physical existence. Existences that are especially set aside to fixate and convey meanings are signs and symbols" (11, p. 171). These verbal signs localize a meaning in what would otherwise be a confused blur, and retain this meaning for further use in the comprehension of things. While we must not make language and thought synonymous, we must recognize that language is a necessary instrument in thinking as well as in the expression of thought. The chief functions which education must

render the child are: the enlargement of his vocabulary, greater precision in the use of words, and fluent use of the vernacular in consecutive discourse.

The best means of enlarging the vocabulary is through the development of a larger fund of concepts, which are the results of sensory experiences with concrete objects. Presentation of a rich sensory experience as a basis for imagination and understanding is most urgently needed, for frequently children find it easier to call a word than to form the appropriate concept represented by the word. Thus verbal memory often results in a weakened foundation for knowledge, for it is not verbal mastery that is lacking, but the ability to form readily images and concepts. While the child is in the naming stage, that is, when he simply names objects seen, it is of prime importance to introduce him to the big, live world of objects about him, and to his rich social heritage—the experiences of men of all ages—especially through stories and games. In later childhood, when the child defines in terms of use or action, plenty of motor materials should be presented, such as the dramatization of stories and the constructive play activities, in order to enable him to work out in concrete form the imagery which he has developed of his problem. The child's ability to observe, discriminate, and reason increases more rapidly with age than the ability to hold disconnected things in mind, partly because of the increasing ability to analyze and group materials and experiences. "Looseness of thinking accompanies a limited vocabulary," because meanings have not been made clear and distinct. "Command of language involves a command of things," because things are definitely located when their class-names are used. The development of a fluent use of the vernacular in consecutive discourse is facilitated by the mastery of a rich experience, and by the imitation of modes of expression of the great masters of literary expression.

D. METHODS IN MEMORY WORK

Since retentivity increases but slightly after early adolescence, it behooves the educative agencies to make full use of this factor in childhood. Sandiford holds that we greatly underestimate the memorial capacity of children; that 3,000 or more lines of prose

or poetry can be learned annually without strain; and that a fourth of this material will be permanently retained. However, as noted above, the child's learning capacity is limited, because he has not learned how to analyze and organize his particular experiences into a well-organized whole. The problem of memory work in the grades is, therefore, the problem of developing the most economical modes of study and learning.

The able teacher, who recognizes the problem, does not select memory materials to be forced upon children, but rather develops the meaning of the selection until she has created a real desire on the part of the children to make it a permanent mental possession without the deadening effect of the rote process. The selection is told, or read, explained, repeated, and dramatized until it is so firmly associated with a hundred factors already assimilated in the child's experience that, ere he is aware, the selection has been mastered. Since the child chooses the masterpieces best understood and most appreciated, Klapper asserts:

> The problem of motivation may be solved by using the selection as the text for an intensive, appreciative reading lesson. Through the entire period the teacher must aim to bring within the children's sphere of appreciation all the elements that make the literary gem beautiful and rich in poetic imagery. . . . . If they catch the message and feel its spirit, the memorization can be based on a real motive; if, for some reason, the selection prove uninspiring, it should not be forced upon them (8, p. 209).

In learning a selection the various parts must be properly related and the connecting words follow in their natural order. The last word of a line should be properly connected with the first word of the next line succeeding, and the one stanza with the stanza next succeeding. The process of learning precept upon precept and line upon line, independently, and then joining them to the remainder, links up words never found in conjunction when the whole poem is repeated. When a poem is read over until the sequence of ideas become memorized the words glide naturally into their proper setting. James says:

> In learning "by heart" there are, however, efficient and inefficient methods; and by making the pupil skilful in the best method the teacher can both interest him and abridge the task. The best method is of course not to "hammer in" the sentences by mere reiteration, but to analyze them and think. For

example, if the pupil should have to learn this last sentence, let him first strip out its grammatical core, and learn, "The best method is not to hammer in, but to analyze," and then add the amplificative and restrictive clauses, bit by bit, thus: "The best method is of course not to hammer in the *sentences*, but to analyze *them and think*." Then finally insert the words "*by mere reiteration*," and the sentence is complete, and both better understood and quicker remembered than by a more purely mechanical method (1, p. 132).

Klapper summaries the values of memorizing ideas in their logical sequences in this fashion:

> First, it simplifies the memorization of the poet's words; each thought prompts its appropriate expression, and with little effort verbatim reproduction is achieved. Secondly, it tends to make recall rational rather than verbal. Study the strained face of the child who recites a memorized selection; the steady stare and the nervous anxiety give evidence of the fact that the child is focalizing all conscious effort on the next line or next word. The recitation is a verbal reproduction, not a reconstruction, thought by thought, of a real situation. When these children err they say what is absolutely devoid of meaning. But when the child learns first a series of thoughts he thinks constantly of the next idea, and when he errs he substitutes his own clumsy wording, with which he expresses the idea in mind in a less elegant form. A third value of such a procedure is that it trains children in systematic and sustained thinking (8, p. 209).

Those wishing clearly presented examples of this analytic work would do well to read Klapper, *Teaching of English*, chap. xii, and Haliburton and Smith, *Teaching Poetry in the Grades*.

Although the whole method of memorizing with its various modifications has proved the most economical method, neither education nor psychology has devised a systematic selection of separate pieces to fit into a well-organized whole. Too frequently each piece memorized is considered a whole in itself—for example, memorizing selections to be given once and remembered no more. In the abovementioned citations from the Ethical Culture School course of study, directions are given for the proper relation of the new materials with the old for the purpose of making "the passages memorized a *permanent* possession." Chubb advocates the selection of pieces good enough in themselves, but which are to be used temporarily, and of pieces which have "the stamp of permanence, that classic quality which fits them to be the 'core' of the work." These "are to be carried forward from grade to grade, to be recalled

and reused in new connections, and for comparative purposes, time and time again." The lamentable weakness of our educational system is that there is no adequate connection or correlation of part with part. There is little organized effort to make the work done in the fourth grade function in the fifth grade, or in the fifth grade to recall and revive what has been done in the fourth grade. The following illustration shows that it has been done in isolated cases: The topic for discussion in the grammar lesson was "The Adjective." The evening before there had occurred a heavy thunder storm, followed by a brilliant rainbow spanning the entire eastern sky. The teacher asked how many had seen the rainbow. Nearly the entire class had seen it. Then she asked them to give words which described it. One after another gave descriptive words until nearly fifty were written on the board. Then this group of words was analyzed in terms of last night's rainbow, and, finally, about a dozen words were selected which described what the pupils had seen. With this as an introduction, the recitation led up to the explanation of the meaning of adjectives. Following this explanation, the teacher asked if they remembered any selections from their literature lessons in earlier grades which referred to rainbows and springtime. Bit by bit, the pupils pieced together several poems learned in preceding years, and these were recited and given a larger interpretation. The discovery that time is needed to make impressions permanent is just as true for the entire school period or life as for one task or lesson. There is therefore no more urgently needed injunction in education than the biblical statement: "Gather up the fragments that nothing be lost."

The materials memorized should not only be correlated, day by day and grade by grade, but also so thoroughly mastered that they will motivate behavior. The illustrations from the several authors quoted above show that the memory work should enlarge the expressional stock and should give a good mastery of the literary heritage. The growing familiarity with language structure molds the child's own language usage, though he may not consciously set himself to imitate his models. Thus the best that has been thought and said should be made more natural through thorough habituation than the rude colloquialisms of his native heath. However,

the greatest service is in storing the mind with the noblest thoughts and feelings uttered by the race, which will function in conduct and the making of character. "Especially important is it to make the first impressions and memories, which are to impart a tone to one's spiritual system for life, rich and pure enough to outsing all baser and cruder songs, and to set the pitch to character." "To endear by repetition; to accumulate a common stock of old, familiar songs that graft themselves deep in the affections and reveal gradually their music and meaning" (6, p. 50)—this is the desideratum of memory work in the grades.

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THE EFFECT OF MALARIA AND HOOKWORM UPON PHYSICAL AND MENTAL DEVELOPMENT OF SCHOOL CHILDREN

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Last spring a health campaign was conducted jointly by the Texas State Health Department, the University of Texas Extension Department, and the International Health Board in three rural districts in east Texas. The object was to show, in an unquestionable manner, the enormous magnitude and the nature of the loss resulting from malaria, typhoid, hookworm, and dysentery, to establish the feasibility of suppressing these diseases at small cost, and to impress upon the people of the state the values resulting from such elimination. In connection with this campaign Dr. A. Caswell Ellis, who was in general charge of the work as pertaining to the University of Texas, asked me to attempt to determine the physical and mental effects of malaria and hookworm upon the school children in the communities concerned. My problem was specifically to try to discover, if existent, and to measure some of the more subtle losses consequent upon these diseased conditions. By means of a house-to-house canvass and individual questioning other workers in this campaign ascertained such tangible facts as "the number of days lost due to sickness," "the amount of doctors' bills," "the number of deaths," etc., but they could not have even proposed the question, "What is your lessened mental acumen due to your attacks of malaria?" It is a question in the minds of doctors and laymen whether malaria has a continuing mental effect. Although the dulling mental and physical effects of hookworm have been proclaimed by the medical profession, this view is not accepted by the countryman whose children and neighbors' children are suffering from the ravages of this disease.

In the endeavor to secure some definite information upon these points, four physical and four mental tests were given to all the

school children in attendance in three schools, in April, 1916, when the health campaign started, and again in November, six months later. After the final examination and grading, the children were classified into groups upon the basis of their hookworm and malaria history. A comparison of the improvements in the various groups during the six months makes possible an evaluation of the effect of the diseases.

Forty-seven children were free from malaria and hookworms at the time of the first examination, and remained so during the summer. The pupil's statement as to malaria and the doctor's as to hookworms are the means of ascertaining these facts. These forty-seven constitute the "control group." Nine children who were free from malaria, but had hookworms at the time of the first examination, remained free from malaria and were cured of hookworms. These will be called "the cured-of-hookworm group." Eleven constitute a "cured-of-malaria group." Eleven constitute a "cured-of-hookworm, cured-of-malaria group." This is not an exhaustive classification, but the other groups, such as "free from hookworm, contracted malaria," possess small populations of two, three, or four. These small groups yield irregular results, though generally confirmatory of those given by the larger groups. The three groups of nine, eleven, and eleven—those cured of malaria, or hookworm, or both since the time of the first examination—have been united and will be referred to as "a cured-of-disease group." The numbers of individuals in these groups are not large, but as the measures of importance in this study are those showing the differences in standing between the first and second examinations, and as these are differences between highly correlated measures, the probable errors of the results are much less than might at first be supposed.

Inaccuracies of one sort or another are often involved in noting the improvement in gross scores, and, on the basis of this, concluding that one group improves more than the other. These difficulties have been excellently discussed by Strong.[1] Without attempting

[1] Edward K. Strong, Jr., *Effects of Hookworm Disease on the Mental and Physical Development of Children*. International Health Commission. Publication No. 3. The Rockefeller Foundation, New York, 1916.

here an adequate discussion of the question, I would point out that these difficulties are in large part obviated by measuring improvement on a scale, the units of which are equally spaced in terms of a normal distribution. Strong, himself, illustrates this fact in a discussion of Ayres's handwriting scale. Accordingly, the method followed was to test by means of material that could be divided into two parts, each of which permitted a grading upon the same scale basis, and then to measure the difference in improvement in the various groups by noting their differences in gross scale scores.

The Starch arithmetic, Thorndike reading, and Trabue completion tests excellently meet these conditions. The Courtis arithmetic test was given because it also can be so divided that a second test, though involving new material, can be graded upon the same basis as the first. The results of the Courtis test were worked up just as the others, but it should be borne in mind that the scores with this test are not scores on a scale, and such disturbing factors as the difference in psychological significance of improvement at different ages corresponding to equal improvement in gross score are not allowed for.

These tests are all school tests, but with the exception of the Courtis, success in which depends mainly upon drill, they are essentially tests of reasoning. Given sufficient reading ability to understand the words used, success in them is very much more dependent upon intellectual alertness than upon school training. It should be further noted that three-fourths of the time between the two tests came during the school vacation. This point is mentioned to show that it is reasonable to attribute different results in the various groups to the difference in conditions of health, and not to other factors. A reference to Table I shows that the difference in age between the "control" and other groups cannot be responsible for the differences found. The "control group" and the "cured-of-disease group" differ in age by but 0.02 year.

Four physical measurements were obtained, viz., weight, vital capacity, grip (average of both hands), and speed of tapping for thirty seconds (average of both hands). The scores for these are not scaled measures. For example, a given number of pounds

increase in weight at the age of six is not equal in terms of its significance to the same number of pounds increase at the age of twenty. However, none of the children, with the possible exception of two or three girls, had completely passed puberty, so that the gross measures of increase do not have decidedly different meanings at the different ages examined, and, as noted, the average ages of the different groups lie near together.

These eight tests tell somewhat different stories as to the effect of the diseases studied. The group increases and related data are given in Table I.

The "control group" shows an average increase in weight during the six months of 4.4 pounds. The "cured-of-malaria group" increased 5 pounds, or 114 per cent of the increase of the "control group." The "cured-of-hookworm group" increased 4.7 pounds, 107 per cent, and the "cured-of-malaria and cured-of-hookworm group" increased 5.5 pounds, 125 per cent. Combining these three groups, we find that the "cured-of-disease group" increased on the average 5.1 pounds, 116 per cent of that of the "control group." The difference between the average increase in weight of the two groups is 0.7 pound, and its probable error is 0.6 pound, showing that the chances are about four to one that the excess increase in weight of the cured group is significant. A perusal of the original data shows that the omission of a single exceptional case from the "control group," a girl who increased twenty pounds in the six months, would raise the excess increase to 1.1 pounds and lower the probable error to about 0.5 pound. These data, therefore, rather strongly indicate that the suppressed vitality due to hookworm and malaria tends to come back with renewed vigor when the suppressing disease is cured.

A small group of three was found who constitute a "contracted-malaria group." This group suffered an average loss in weight, for the six months, of 2.7 pounds. The group is too small to yield conclusive evidence, but it strongly indicates that the onset of malaria seriously impedes growth, and we have found that cure from it and hookworm leads to a spurt in growth. The gain, however, is not as pronounced as the setback. It would seem that, though there is recovery, it does not entirely compensate for the loss. The age at the time of onset of the disease and its duration

TABLE I

AVERAGE INCREASES OF VARIOUS GROUPS AND PROBABLE ERRORS OF SAME

Groups	Numbers of Individuals in Groups	Average Ages of Groups	Weight P.E.	Vital Cap. P.E.	Grip Average of Two Hands P.E.	Tapping Average of Two Hands P.E.	Courtis Sum of "Rights" P.E.	Starch Arithmetic Scale P.E.	Thorndike Reading Scale Alpha 2. P.E.	Adaptation of Trabue Completion Scale P.E.
Control.....	47	12.3	4.4..0.4	11.8..1.4	−0.8..0.26	6.1.. 2.7	−0.2..0.5	0.7..0.2	−0.15..0.13	0.32..0.13
Cured-of-hookworm..	9	11.1	4.7..0.9	14.1..3.2	−0.4..0.60	13.0.. 6.2	−2.4..1.1	1.8..0.5	0.34..0.28	−0.02..0.29
Cured-of-malaria....	11	14.7	5.0..0.8	15.3..2.8	−0.6..0.54	5.3.. 5.6	−1.2..1.0	1.1..0.5	−0.19..0.26	0.59..0.26
Cured-of-both	11	10.9	5.5..0.8	14.9..2.8	0.4..0.52	8.5.. 5.6	−0.4..1.1	0.9..0.5	−0.41..0.27	1.00..0.26
Cured-of-disease.....	31	12.3	5.1..0.5	14.8..1.7	−0.2..0.32	.....	−1.3..0.6	1.2..0.3	− .11..0.16	0.54..0.16
Contracted-malaria....	3	16.3	−2.7..1.5	− 2.7..5.5	−3.5..1.00	7.5..10.7	0.0..1.9	1.7..0.9	0.70..0.49	0.60..0.50
DIFFERENCES										
Cured-of-disease minus control.....	.....	0.0	0.7..0.6	3.0..2.2	0.6..0.41	.....	−1.1..0.8	0.5..0.4	0.03..0.20	0.22..0.21
Contracted-malaria minus control.....	.....	4.0	−7.1..1.6	−14.5..5.6	−2.7..1.03	.....	0.2..2.0	1.0..0.9	0.84..0.51	0.28..0.52
CORRELATIONS BETWEEN FIRST AND SECOND TESTS—CONTROL GROUP										
			0.9925	0.958	0.972	0.866	0.899*	0.903*	0.895	0.900

* These two coefficients are larger than would have been found if scores of individuals making zero on both tests had not been included in the calculation.

probably both affect the amount of recovery. A child who is seriously diseased during the years of rapid growth, if completely cured before an adult age is reached, will probably show a decided spurt, but it is equally likely that he will never attain the development he would have reached had he not been ill. The data suggest that much the same consequences follow upon disease of long duration as upon malnutrition, which consequences are stated in these words of Child:[1]

> The results of return to a normal diet after a period of insufficient nutrition apparently depend in part upon the length of that period. It has been clearly demonstrated that in man as well as in animals the retarding effect upon growth of even a considerable period of insufficient nutrition may be compensated later on a normal diet. But it is also true that a sufficiently long period of underfeeding may result in permanent "stunting," the body apparently being unable to recover its full capacity for growth. . . . . After a long period of underfeeding the tissues are physiologically older, and therefore less capable of growth, even when nutrition is present in excess, than in the continuously well-fed animal of the same size.

The data for vital capacity show exactly the same tendencies, but more conclusively. The increase of the "control group" was 11.8 cubic inches, and the increase of the "cured-of-disease group," 14.8 cubic inches, 125 per cent, an excess increase of 3 cubic inches, while the "contracted-malaria group" actually shows a loss of 2.7 cubic inches.

In strength of grip the "cured-of-disease group" shows an increase of 0.6 kg. over the "control group," with a probable error of 0.4 kg. The group cured of both diseases shows an increase in excess of that of the normal group of 1.2 kg., with a probable error less than half as great.

There is no warrant for combining the hookworm and malaria groups with reference to tapping, for it is found that those cured of hookworm increase more rapidly and those cured of malaria less rapidly than normal. The "cured-of-hookworm group" increases 3.1 taps in thirty seconds more than the "control group," but the "cured-of-malaria group" increases 2.5 taps less than the normal group. This may be because they have been relieved of a certain nervous tension, but the probable errors of these particular results make any conclusion that may be drawn merely tentative.

[1] C. M. Child, *Senescence and Rejuvenescence* (1915), pp. 281–82.

Speed of tapping is the only one of these measures which shows a gain with the contraction of malaria, all the others showing an improvement with cure. In the case of hookworm all the measures show an improvement with cure.

The mental tests do not yield as conclusive data, not so much because the differences in improvement are less pronounced, as because the correlations between the first and second tests are smaller, thereby making the probable errors of these differences larger. The "cured-of-malaria," the "cured-of-hookworm," and the "cured-of-both" groups all show less improvement with the Courtis tests in fundamentals than is shown by the "control group." In none of these cases, however, is the difference more than half as large as its probable error, so this result may be due to chance, or, as already suggested, to the crudity of the measure used. The score in the Courtis test was the sum of the "rights" in the time allowed for the four fundamental operations. The score is not a scaled measure; it is one of speed (note in this connection the speed of tapping results) and has a large probable error, any or all of which facts may be responsible for the result found.

The Starch arithmetic test shows uniformly greater improvement with the cured groups than with the "control group."

The improvement of the "control group" in the Thorndike reading test is very much less than that of the "cured-of-hookworm group," about the same as that of the "cured-of-malaria group," and 0.3 of a unit more than that of the "cured-of-both group." Combining, it is found that the "cured-of-disease group" shows up slightly better than the "control group."

With the Trabue completion test the "control group" increases less than the "cured-of-malaria group," decidedly less than the "cured-of-both group," but improves slightly more than the "cured-of-hookworm group." Combining the groups, we have these figures: increase in the Trabue completion test by the "diseased-but-cured group," 0.54 Trabue unit; increase by the "control group," 0.32, difference, 0.22, with a probable error of 0.21.

Thus the Starch, Thorndike, and Trabue tests, on the whole, show that there is a spurt attendant upon cure. Taking the three tests together, the chances are very much in favor of the spurt being

a genuine one, but the data are not sufficient to establish its magnitude. It does, however, seem to be apparent that there is not as great a spurt as in the case of the physical traits.

These data, so far as the physical measures are concerned, are in entire harmony with the findings of Dr. C. W. Stiles, as reported by Strong, but so far as the mental development is concerned they differ radically from Strong's findings. The difference might possibly be attributed to the difference in method, but since Strong's first and second examinations were but three and one-half months apart, it is very likely that sufficient time had not elapsed to permit the benefits of cure being fully realized. It is, of course, also possible that the time between the tests in this study, six months, is not sufficient completely to cover the period of gain after cure. Strong reports that children cured of hookworm progress mentally more rapidly than would have been the case if they had not been cured, but less rapidly than normal, whereas the conclusion from the data just presented would be that in mental as well as in physical traits they improve after cure more rapidly than normal. In this connection I quote a paragraph from a lecture delivered by Dr. A. Caswell Ellis, showing the money cost of malaria, hookworm, typhoid, and dysentery:

> Finally, we have the most nearly accurate account yet secured of the actual kinds and amounts of preventable diseases present in our lowland, coastal plain country. In the approximately two hundred white families studied, there were four deaths from malaria last year, and an average of 2.4 attacks per person. There was a money loss from preventable disease of $77.00 per family, on account of doctors' bills, medicine, nursing, and loss of time from work. There was a per capita loss of $15.71 for the whites. The negroes had just as much sickness, but because of neglect the cost was about half that of the whites. The total immediate cost of preventable disease, as far as this could be recalled at the end of the year by 179 white and 119 negro families studied, was $17,703.00. Of this, malaria caused the loss of $12,258.00. As there are about a million people living along the coastal plain of Texas, equally exposed to these attacks, it means that last year one-fourth of the population of Texas alone paid a preventable disease tax of about fifteen million dollars, including a malaria tax of about ten million. In addition, they suffered the pain of more than two million attacks of malaria, and lost over four thousand loved ones by death. East Texas is no worse nor better than the rest of the Gulf and Atlantic coastal plain, at least as far up as Virginia, and the valleys of the Mississippi, Missouri, Ohio, and a thousand and one other rivers and creeks in the temperate and semi-tropical parts of America. Multi-

ply the millions of cases of suffering and the millions of money loss that are now proven in Texas by the number of millions inhabiting the anopheles infested coastal plain and river and creek bottoms, and you will have some idea of the hundreds of millions of money and the frightful tribute of human pain and misery that we stupidly pay each year, when our experience seems to show that for less than one-seventh of the actual amount lost each year we can immediately and permanently prevent more than half of this loss, and in a few years practically all of it.

The national government spends hundreds of thousands per year on hog culture and hog cholera, hundreds more on cattle culture and cattle ticks, and yet the fund allowed Dr. von Ezdorf this year for malaria work is just nineteen thousand dollars for this vast empire. When I pleaded with Congress for a small sum to start this work in Texas, I was solemnly assured by a distinguished member that it might prove a very bad precedent; that if the work succeeded, the whole country would want such help, and that it would cost a billion dollars before the country was freed from these diseases. The fact that that billion would save fifty thousand lives and a billion dollars per year made no dent in the crust of his mind.

To this cost I would add another, the lessened physical and mental excellence due to malaria and hookworm. When we consider that in mental make-up there is but little difference between the leader of finance of $10,000.00 or $20,000.00 a year and his secretary at $2,000.00 a year—that just a little extra makes a man boss of a gang instead of one of its members—the seriousness of weakened physical and mental life and its money value assume proportions which make the cost of cure a pittance too small to weigh against the benefits derived from it.

To recapitulate the points brought out by this study: (1) Cure from hookworm leads to an immediate increase in physical and mental development beyond the normal rate. (2) Cure from malaria leads to immediate increase in physical and mental development beyond the normal rate, except in the case of tapping. (3) Contraction of malaria leads to a decided checking, except in the case of tapping. This is supported by data from three individuals. (4) The spurt attendant upon cure is not as great as the retardation attendant upon contraction. (5) The money cost of cure is entirely incommensurate with its benefits. (6) It is hoped that studies similar to Strong's and the one here reported will awaken people generally to the blessings at hand at such small expense and will encourage them to endeavor to secure these blessings.

SILENT READING

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Increasing the pupils' ability to comprehend what is read is one of the various phases of teaching reading in the elementary grades. We have emphasized silent reading for some time, and have recently made tests to ascertain the effect of this emphasis.

We gave the Starch reading tests twice during the year 1915–16 to measure the progress of the year's work. The first test was given in the latter part of November, early enough in the year to show fairly well the ability of the pupils at the beginning of the year, yet late enough to allow the pupils to get into the habit of study after the summer vacation. The second test was given in May when the year's progress could well be measured.

The same material was used in both tests. Six months intervened between the tests, and the teachers during this time omitted any reading lessons which contained the same material. Dr. Starch asserts that the same material may be used in subsequent tests if sufficient time intervenes between the tests.

While these tests are quite familiar to the majority of teachers a brief explanation here may be in order. The tests are carefully graded for use in Grades II to VIII inclusive. Each pupil is given a printed sheet which contains a part of some narrative or descriptive material well within the comprehension of the pupils of each grade. The pupils are given thirty seconds to read silently, and then, after marking the amount read, they write what they can on the reverse side of the sheet. To compare the results with the Starch standards, the number of words read per second and the number of words written without any time limit are counted. One possible weakness of the test in comprehension is the fact that the number of words used by the pupils in their reproduction is taken as their ability to retain. The number of words used by the pupils in expressing themselves varies as it does with adults. In these tests, however, this variation has been found to be slight.

During the six months which intervened, these two phases of reading were emphasized by the teachers in devoting about four periods per week to this work. Some of the work was done with the geography, history, hygiene, literature, and civics material, and often in other periods than the reading period. Carpenter's *Geographical Readers* were frequently used, as the paragraphs contain many facts, and the material correlates well with the geography.

Different devices were used in these drill periods to increase the pupils' ability to read silently. The pupils were given material, principally narrative and descriptive, to read silently, a paragraph at a time, in many cases with a time limit placed upon the reading. Placing time limits upon the reading often speeds up the work and produces greater concentration and clearer thinking. After the reading of each paragraph the pupils were asked questions upon the thought of the passage read. Questions directed so as to bring out the thought seem to secure better results than asking the pupils to "tell what they have read." Many pupils can give from memory what they have read without being able to answer questions upon the thought. The plan often reveals the pupils' ability to think logically in response to the questions. We often find it necessary to remind the pupils that while they have given much of the substance of the paragraph, they have not answered the questions.

An illustration may be taken from a lesson given with a VB class using Carpenter's *Geographical Reader of North America*. The class was given sixty seconds to read the paragraph on p. 50:

> A car ride of less than three hours brings us from Baltimore to Philadelphia. We pass the manufacturing city of Wilmington, Delaware; and long before we reach Philadelphia itself we see factories, and learn that we are in one of our chief manufacturing centers. There is only one city in the country which has more manufacturing establishments than Philadelphia, and that is New York. There are more than two hundred thousand men and women in Philadelphia who make things to sell. Thousands are busy weaving woolen cloths and making clothing. There are thousands of men building ships, and our greatest naval vessels are made here. Other thousands are making goods of iron and steel; and we learn that the United States has become the greatest manufacturing country in the world.

After the reading of this paragraph some of the following questions were asked: "How long a car ride is it from Baltimore to

Philadelphia?" "What is Philadelphia's greatest industry?" "How many people are engaged in this industry?" "What are the principal things made?"

This was followed by another period of sixty seconds occupied in reading the next paragraph:

After our country was first settled the most of the people were farmers. They raised things from the soil. As more people came, some of them began to make things to sell. This has gone on until now one man out of every five in the United States is engaged in manufacturing. We have now twelve times as many factories as we had forty years ago, and a vast amount of money is spent every year paying wages of the men who work in them. If we could see all the workmen of the world, we should learn that our people are better fed, and better clothed, and have better houses than those of any other nation. We find this especially so in Philadelphia. We walk for miles through long streets of small but neat houses made of bricks with steps of white marble. There are thousands of such houses here belonging to the working people, and it is said that more people own their own homes in Philadelphia than in any other large city of the world.

This reading is followed by another series of questions: "Why is the occupation of the people of the United States different from the occupation of those who first came?" "How do the conditions of our workmen compare with the conditions of the workmen of other countries?" "Give five facts concerning the homes of the workmen."

The pupils were then asked to find three facts in the next paragraph which show why Philadelphia has become a great manufacturing city:

But why has Philadelphia become a great manufacturing city? One reason is because it is so situated that materials can be cheaply brought to it, and the manufactured goods shipped from it to other parts of the United States. The slopes of the Appalachian Range are such that railroads have been built from Philadelphia through the passes of the Alleghany Mountains, thus giving it an easy road to the lands farther west. It is also a seaport, although it is one hundred miles from the Atlantic Ocean. Large steamships can sail up the Delaware Bay to Philadelphia, bringing materials people want to use in their shops, and carrying their manufactured goods to all parts of the world. The Schuylkill River furnishes Philadelphia with water-power for manufacturing purposes, and the city lies so near the coal lands of Pennsylvania that the fuel for steam-power costs very little. Not far from it are the largest beds of anthracite coal to be found anywhere. This coal makes a great heat and is very valuable for manufacturing. It is so hard that people for a long time did not think it would burn, one noted man saying that if the world were burned up this would be the very last thing that would catch fire.

Telling the pupils what to look for in a paragraph is often necessary with pupils who are deficient in silent reading, as well as

with fifth-grade pupils in general, who are being held responsible more than ever for their textbook material.

Tom Sawyer's experience in whitewashing the fence was read to the pupils of the fifth, sixth, and seventh grades. In the paragraph telling of the articles received by Tom in exchange for the privilege of whitewashing, the names of four articles at a time were read to the pupils and they were asked to name them. After the list was read to the pupils in this way by fours the entire list was re-read to them, and they were asked to name as many as they could remember. One fifth-grade pupil was able to remember thirteen of the sixteen articles and a sixth-grade pupil was able to name fourteen. This, of course, was a test of concentration and memory, and not of silent reading, yet it is interesting and helpful in assisting the teacher to become familiar with the pupils' mental faculties.

In the seventh grade, as a further illustration, the pupils read silently *Rip Van Winkle.* In the paragraph describing Rip, the pupils were asked to give Rip's characteristics. Some of the pupils had considerable difficulty in doing this, and frequently began to relate amusing incidents of the narrative. Being held down to definite information is excellent drill for the pupils.

Some teachers not only require a time limit, but require only one reading of the material. It is thought that this will increase the pupils' accuracy.

The charts show that considerable progress was made during the year. I am unable to account for the loss in speed in the seventh and eighth grades during the year unless the pupils in these grades had acquired poor habits of comprehension, the correction of which entailed a decrease in speed. The decided drop in the score of the seventh grade as compared with the sixth is due to the fact that there were a large number of weak pupils in this grade. It is interesting to note, however, that the ability of these pupils increased nearly as much during the year as it did with the pupils of the other grades.

While drill work of this kind is upon only one phase of the reading, it may tend to make better students, as they will be better able to look for the essential in their texts, and be better able to comprehend it.

EDUCATIONAL WRITINGS

I. DESCRIPTIVE LIST OF STANDARD TESTS, 1917[1]

WILLIAM S. GRAY
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A descriptive list of standard tests appeared in the *Elementary School Journal* in September, 1916. During the past year additional tests have been organized and standardized. The list which is here presented includes the tests mentioned in the previous article, and in addition the tests which have been organized recently. Three items are mentioned in regard to each test: (*a*) the purpose and organization of the test, (*b*) the place where it may be secured, (*c*) a reference in regard to its derivation and use, if such a description has been published. Although the tests which have been organized vary greatly in their validity and value, no attempt is made here to discuss the relative merits of the tests.

The statements concerning the organization and purpose of the tests are very brief and have been intended to present only the leading features of the tests. Anyone who contemplates using a test should first read a more detailed description of it, in order to determine whether or not it will be of value to him. Although great care has been observed in securing price lists, it is recommended that prospective purchasers correspond directly with those selling the tests, in order to secure an accurate estimate of the cost of the tests which are desired.

READING

Brown's Silent Reading Tests.—These tests include three selections which are simple stories designed for use in testing silent-reading ability in all grades. The tests are of approximately equal difficulty, and they are intended for use at different periods

[1] Reprints of this article may be secured from the School of Education, the University of Chicago (price, 5 cents a copy, 36 cents a dozen).

of the year to measure progress. They have been given to 12,000 children, and tentative standards are available. The tests measure the rate of reading and a pupil's ability to interpret a connected passage in terms of its thought-content. The ability to reproduce is taken as the measure of comprehension. (Price, $0.50 a hundred.) Address H. A. Brown, State Normal School, Oshkosh, Wisconsin. Read *Bulletin No. 1* of the Bureau of Research of the New Hampshire Department of Public Instruction, Concord, New Hampshire.

Courtis Standard Research Tests, Silent Reading.—Series R, Test No. 2. This is the first of a projected series of tests designed to measure various phases of silent reading. Test No. 2 consists of two parts. In the first part, the children read a simple child's story under normal conditions. This yields a measure of the rate of reading. In the second part, the paragraphs of the story are reprinted, and under each are given five simple questions about the paragraph. The questions are designed to test the child's comprehension of the relations existing between the essential elements of the story. The scores have diagnostic value and enable a teacher to determine the nature of the pupil's defects. The tests are suitable for Grades I–VI. They are available in two forms of nearly equal difficulty, so that measurements may be made at the beginning and end of the year. (Price, including instructions, record sheets, etc., for a class of forty children, $0.60.) Address Courtis Standard Research Tests, 82 Eliot Street, Detroit, Michigan. Read "Measurement of Ability in Silent Reading," by S. A. Courtis, *American School Board Journal*, May, 1917.

Gray's Reading Tests.—The oral-reading test consists of a series of standardized paragraphs arranged in the order of increasing difficulty. This test may be used to measure the achievement of pupils of all grades in the mechanics of oral reading. The silent-reading tests consist of a series of three selections, the first for pupils of the second and third grades, the second for pupils of the fourth, fifth, and sixth grades, and the third for pupils of the seventh and eighth grades. These selections may be used to measure the rate at which pupils read silently and their ability to reproduce and to answer questions concerning what they have read. These tests

are individual tests rather than group tests and are designed for careful detailed studies of reading ability. (Oral-reading tests with directions and score sheets, $0.50 a hundred; silent-reading tests, $0.50 a hundred; postage or express extra; state number wanted for each grade when ordering.) Address William S. Gray, School of Education, University of Chicago, Chicago, Illinois. Read *Studies of Elementary-School Reading through Standardized Tests*, by William S. Gray, Chicago: The University of Chicago Press. $1.00.

Jones's Scale for Teaching and Testing Elementary Reading.—This test consists of a list of words which have been found to occur most frequently in ten or more widely used primers. "These tests will aid to discover a pupil's command of the vocabulary common to first-, second-, and third-grade readers." (Manual and material for testing one hundred pupils, $2.00; manual separate, $0.25; cards separate, $0.03.) Address Rockford Printing Company, Rockford, Illinois. Read *Fourteenth Yearbook of the National Society for the Study of Education*, Part I, pp. 37–43.

The Kansas Silent Reading Tests designed by F. J. Kelly.—These tests consist of carefully graded groups of exercises for silent study, one for the primary grades, one for the grammar grades, and one for the high school. Comprehension is measured by the accuracy with which questions raised in the exercises are answered. The pupil's ability to read is measured by the number of reading exercises which he can comprehend accurately within a given time. Test I is for Grades III, IV, and V; Test II, for Grades VI, VII, and VIII; Test III, for Grades IX, X, XI, and XII. (Price, including directions and record sheets, $0.40 a hundred.) Address Bureau of Educational Measurements and Standards, Kansas State Normal School, Emporia, Kansas. Read "The Kansas Silent Reading Test," by F. J. Kelly, *Journal of Educational Psychology*, February, 1916.

Starch's Silent Reading Tests.—These tests consist of a series of selections, one appropriate for each grade in the elementary school. They are designed to measure speed and comprehension in reading for Grades I–VIII. Two sheets are required for each pupil. (Price, $0.30 a hundred sheets. When ordering, specify the number of pupils to be tested in each grade.) Address University

Supply Association, Madison, Wisconsin. Read "The Measurement of Efficiency in Reading," by Daniel Starch, *Journal of Educational Psychology*, January, 1915.

Starch's English Reading Vocabulary Test.—This test is designed to supplement the silent-reading tests and to measure the range of a pupil's reading vocabulary. For Grades V–XII. One sheet to each pupil. (Price, $0.45 a hundred.) Address University Supply Association, Madison, Wisconsin.

Thorndike's Improved Scales for Word Knowledge or Visual Vocabulary, Scale A2 and Scale B.—These scales consist of series of words which must be defined by the reader. The class to which each belongs is indicated by writing "the letter *F* under all words that mean a flower, *A* under all words that mean an animal," etc. The scales are used to measure the ability of pupils to know the meanings of single words seen. They are printed on four sheets: Scale A2, x series; Scale A2, y series; Scale B, x series; and Scale B, y series. (Price, $0.40 a hundred; $3.00 a thousand of any one kind. Postage extra. Sample set, $0.06 by mail.) Address Bureau of Publications, Teachers College, Columbia University, New York City. For description of derivation, use, and scoring of these scales see *Teachers College Record*, November, 1916: an article on "The Measurement of Achievement in Reading: Word Knowledge," by E. L. Thorndike. (Price, $0.40.)

Thorndike's Improved Scale for Measuring the Understanding of Sentences, Scale Alpha 2, Parts I and II.—These scales consist of carefully graded paragraphs, each of which is accompanied by a series of questions, the answers to which must be determined as the pupil reads and studies the paragraph. The purpose of the test is to measure the pupil's ability to understand the meaning of sentences and paragraphs. Part I may be used for Grades III–V; Part II for Grade VI to high school. (Price, each part, $0.75 a hundred. Record sheets, $0.25 a dozen. Postage extra. Sample set, both parts and record sheet, $0.08 by mail.) Address Bureau of Publications, Teachers College, Columbia University, New York City. For description of derivation, use, and scoring of this scale see *Teachers College Record*, November, 1915, and January, 1916: Two articles on the "Improved Scale for Measuring Ability

in Reading," by E. L. Thorndike. (Price, $0.80 for both numbers.)

Visual Vocabulary Scale and Reading Tests for the Understanding of Sentences.—By M. E. Haggerty, University of Minnesota. For details and price list address the Bureau of Co-operative Research, College of Education, The University of Minnesota, Minneapolis, Minnesota.

ARITHMETIC

Cleveland Arithmetic Tests.—These tests have been called the spiral arithmetic tests because each of the fundamental operations appears several times: thus, in addition, the simplest exercise consists of adding pairs of two-place figures; the second series consists of short columns of one-place figures; the third series consists of the addition of fractions of like denominators; the fourth case consists of the addition of longer columns of figures; the fifth case consists of the addition of four-place figures which require carrying forward from one column to the next; the addition of fractions of unlike denominators constitutes the final and most elaborate series. Similar spiral tests in subtraction, multiplication, and division are interwoven with the exercises in addition. This test is designed to measure the ability of different grades to perform increasingly elaborate problems in the fundamental operations. (Price, $1.00 a hundred; postage or express extra.) Address Dr. Charles H. Judd, School of Education, University of Chicago, Chicago, Illinois. Read *Measuring the Work of the Public Schools*, by Charles H. Judd. Russell Sage Foundation, Division of Education, New York City. $0.50.

Courtis Arithmetic Test, Series B.—This test consists of a series of examples in each of the four fundamental operations. They have been designed to serve as general measures of ability in the fundamental operations. In the test in addition, for instance, the numbers are so chosen that all fundamental combinations are presented. "The tests attempt to measure whether or not a child or a class has learned (1) the fundamental combinations, (2) the mechanism of column addition, (3) to carry, (4) to bridge the attention span, (5) to control the effects of fatigue, (6) to work at the

proper speed, and (7) with proper accuracy." (Price for tests, instructions, and record sheets for a class of forty children, any grade from III to VIII, $0.35.) Address S. A. Courtis, 82 Eliot Street, Detroit, Michigan. Read *A Manual of Instructions for Giving and Scoring the Courtis Standard Tests.* (Price, $0.75).

Research Tests in Arithmetic.—These tests consist of a series of examples designed to test a pupil's ability in the addition of fractions. Address Department of Educational Investigations and Measurements, Boston, Massachusetts, and secure samples of the test. Read *Bulletin No. 7*, entitled "Arithmetic," published by the same department.

Rice's Reasoning Tests.—These tests consist of five series of problems designed to test the arithmetical reasoning ability of elementary-school pupils from the fourth to the eighth grade inclusive. They are referred to here because they represent the initial study made in this field. See "A Test in Arithmetic," by J. M. Rice, *The Forum*, XXXIV (1902), 281–97 and 437–52.

Starch's Arithmetic Test.—This test consists of a series of problems designed to measure ability to solve problems. For Grades III–VIII inclusive. (Price, $0.45 a hundred.) Address University Supply Association, Madison, Wisconsin. Read "A Scale for Measuring Ability in Arithmetic," by Daniel Starch, *Journal of Educational Psychology*, April, 1916.

Stone's Reasoning Tests.—These tests consist of a series of problems designed to test the arithmetical reasoning ability of pupils. (Price, $0.40 a hundred; postage extra; direction card, $.05.) Address the Bureau of Publications, Teachers College, Columbia University, New York City. Read *Standardized Reasoning Tests in Arithmetic and How to Utilize Them*, by Clifford W. Stone. (Price, $0.55 in paper; $0.80 in cloth.)

Woody's Arithmetic Scales.—These scales consist of thirty or forty examples in each of the fundamental operations of arithmetic. In each case the examples are graduated as to difficulty of solution, beginning with the most simple example that could be found and increasing gradually in complexity and difficulty to problems so difficult that not more than half of the eighth-grade children could solve them correctly. The scales are printed in two series on eight

sheets: Series A, Addition, Subtraction, Multiplication, and Division (long series); Series B, Addition, Subtraction, Multiplication, and Division (short series). (Price, $0.40 a hundred; $3.00 a thousand of any one kind. Postage extra. Sample set, $0.06 by mail.) These scales are reprinted from the following: *Measurements of Some Achievements in Arithmetic*, Teachers College Contributions to Education, Columbia University, by Clifford Woody, which describes the derivation, use, and scoring of the above scales, and gives tentative standard scores. (Price, $1.00 in cloth; $0.75 in paper.)

Drill devices in the fundamentals.—The following devices have been designed by various book companies to secure economy and efficiency in teaching the fundamental operations. Samples and circulars of information should be secured and studied carefully before ordering.

Courtis Standard Practice Tests. Yonkers, N.Y.: World Book Co. Sold in sets containing 48 different tests (50 copies of each test, list price, $4.32; 150 copies of each test, list price, $7.68).

Teachers Manual for Using Courtis Standard Practice Series (list price, $0.25); *Student's Record for Courtis Practice Series* (50 copies, list price, $1.00).

Fassett's Standardized Number Tests. Springfield, Mass.: Milton Bradley Co. Write for price lists.

Studebaker's Economy Practice Tests in Arithmetic. Chicago, Ill.: Scott, Foresman & Co. Fifty different practice cards in a set (set complete in filing case, adequate for one building, $9.50; pupil's record folder, $1.00 a hundred).

Thompson's Minimum Essentials in Arithmetic. Chicago, Ill.: Ginn & Co. Thirty practice and test sheets, including examples in addition, subtraction, multiplication, division, and denominate numbers (100 sheets, one kind, $0.25; 500 sheets, one kind, $1.00 for test sheets, $0.90 for practice sheets).

WRITING

Ayres's "Three Slant Edition" of Handwriting Scale.—This scale consists of three series of writing samples arranged in the order of increasing merit from the standpoint of "legibility." The three

series are composed, respectively, of vertical, medium-slant, and extreme-slant writing. The scale may be used in measuring the quality of the handwriting of pupils in the intermediate and upper grades of the elementary school. (Scale, $0.05 a copy; descriptive bulletin, entitled *A Scale for Measuring the Quality of Handwriting of Children*, $0.05 a copy.) Address Russell Sage Foundation, New York City.

Ayres's Adult Handwriting Scale.—This scale is constructed from samples of the handwriting of adults in a manner similar to the children's handwriting scale. It was prepared at the request of the Municipal Civil Service Commission of New York City. The scale is designed to aid in testing candidates for positions where handwriting is a necessary qualification; and may be used for measuring the legibility of the handwriting of high-school pupils. (Scale, $0.05 a copy; descriptive bulletin, *A Scale for Measuring the Quality of Handwriting of Adults*, $0.05 a copy.) Address Russell Sage Foundation, New York City.

Ayres's "Gettysburg Edition" of Handwriting Scale.—So-called because made from samples of writing reproducing the first part of Lincoln's Gettysburg Address. This scale embodies numerous improvements over the earlier scales without superseding them. On the scale are presented in graphic form the average scores in both quality and speed made by children in the different grades. (Scale, $0.05 a copy.) Address Russell Sage Foundation, New York City.

Courtis Standard Research Tests, Handwriting, Series W.—Test I, Handwriting: An untimed "maximum performance" test, designed to secure samples of the children's best writing after practice. Test II, Filing Test: A "free-choice" copying test, designed to secure samples of the children's writing under working conditions. The test consists of the names and addresses of ten business firms to be copied in alphabetical order. In both tests the quality of the writing is to be measured with the Ayres scale. The difference in quality between the two samples reveals any "lack of transfer" from the work of the writing class to ordinary writing. The material in the Filing Test has been so chosen as to afford excellent material for an analysis of the defects in the writing of a

particular child. Suitable for any grade. (Price, including directions, record sheets, etc., but not a writing scale, $7.00 per thousand. Address S. A. Courtis, 82 Eliot Street, Detroit, Michigan.

Freeman's Handwriting Scale.—This scale consists of five series of writing samples. The samples of each series have been arranged in the order of increasing merit. The five characteristics of handwriting which are considered are (1) uniformity of slant, (2) uniformity of alignment, (3) quality of line, (4) letter formation, (5) spacing. This scale may be used in determining the general quality of a pupil's handwriting. In addition, it was designed particularly as an aid in diagnosing faults in handwriting along the lines mentioned above. (Scale, $0.25 a copy.) *The Teaching of Handwriting*, by F. N. Freeman (price, $0.60 a copy). Address Houghton Mifflin Co., Chicago, Illinois. Read "An Analytic Scale for Handwriting," by F. N. Freeman, *Elementary School Journal*, January, 1915.

Standard Score Card for Measuring Handwriting, by C. Truman Gray.—This score card contains a list of nine characteristics of writing which deserve consideration in the analysis of the quality of handwriting. The relative importance of the nine points has been expressed in terms of weights or scores. The score card may be used in diagnosing individual needs in handwriting. (Price, $0.20 a copy.) Address C. T. Gray, University of Texas, Austin, Texas. Read The University of Texas *Bulletin No. 37*, 1915, entitled "A Score Card for the Measurement of Handwriting."

Thorndike's Handwriting Scale.—This scale consists of a series of writing samples, arranged in order, from the standpoint of "general merit." It may be used in measuring the quality of the handwriting of pupils in the elementary school. The scale is printed on a chart 22×26 inches. (Price, $0.08 by mail; in quantities, $0.05; postage extra.) Address Bureau of Publications, Teachers College, Columbia University, New York City. Read *Handwriting*, by E. L. Thorndike. (Price, $0.35 by mail). For practice exercises in scoring handwriting read *Teacher's Estimates of the Quality of Specimens of Handwriting*, by E. L. Thorndike. Includes problems for judging handwriting; the Thorndike

scale for Grades V–VIII; three sets of samples of handwriting for practice; four record sheets. (Price, $0.30 by mail.)

SPELLING

Ayres's Spelling Scale.—This scale consists of 1,000 of the most frequently used words. The words are arranged according to their relative difficulty as determined by the spellings of some 70,000 school children in 84 American cities. The scale enables one to measure a child's spelling ability in terms of school grades. (Scale, $0.05 a copy.) Descriptive bulletin, entitled *A Measuring Scale for Ability in Spelling*, by Leonard P. Ayres (including scale, $0.30 a copy). Address Russell Sage Foundation, New York City.

Buckingham's Spelling Ability: Its Measurement and Distribution.—This monograph presents a list of 50 words, the relative difficulty of which has been carefully determined. These words may be used in measuring the achievement of elementary-school pupils in spelling. (Cloth bound, a copy, $1.15; paper bound, $0.95.) Address Bureau of Publications, Teachers College, Columbia University, New York City.

Jones's Concrete Investigation of the Material of English Spelling.—This bulletin presents the results of an investigation to determine, "What words, grade for grade, do children use in their own free written speech, and what words, therefore, do they need to know how to spell?" (Bulletins, $0.10 each; $1.00 a dozen.) Address University of South Dakota, Vermilion, South Dakota.

Starch's Spelling Tests.—These tests are composed of 6 spelling-lists, each of which contains 100 words. These words were selected from a list which was composed of the first defined word on every even-numbered page in *Webster's New International Dictionary*. The tests were designed for use in all grades to measure general spelling ability. One set for each teacher or examiner. (Price, $0.05 a set.) Address University Supply Association, Madison, Wisconsin. Read *Educational Measurements*, by Daniel Starch, chap. vi (Macmillan).

COMPOSITION AND GRAMMAR

Harvard-Newton Composition Scale.—This scale consists of a series of six compositions for each of the four types of English

compositions. The compositions of each series are arranged in the order of merit, with strong and weak points listed. This scale was designed as an aid in measuring the merits and defects of compositions written by eighth-grade pupils, and may be used effectively in scoring high-school compositions. Address Frank W. Ballou, Department of Educational Investigations and Measurements, Boston, Massachusetts. Read *Harvard-Newton Bulletin No. 2*, September, 1914. Address Bureau of Educational Measurements and Standards, Kansas State Normal School, Emporia, Kansas, and secure scale with directions for use and class-record sheet (price, $0.10).

Hillegas' Composition Scale.—This scale consists of a series of compositions arranged in the order of general merit. It is used in measuring the general merit of compositions written by elementary and high-school pupils. (Hillegas' Composition Scale, price, $0.03 by mail; in quantities of 25 or more, $0.02 per copy, postage extra. Preliminary Extension to the Hillegas Scale, $0.08 by mail; in quantities, $0.05 a copy, postage extra.) Address Bureau of Publications, Teachers College, Columbia University, New York City. Read "Hillegas Scale for Measurement of English Compositions," *Teachers College Record*, September, 1912.

Nassau County Supplement to the Hillegas Scale.—This scale is presented on a chart 11×17 inches. (Price, single copy, $0.08 by mail; in quantities, $0.05 a copy, postage extra.) Read *Supplementing the Hillegas Scale*, which gives the results of measurements in many schools, tentative standards by grades, and methods of calculating scores. (Price, $0.40.) Address Bureau of Publications, Teachers College, Columbia University, New York City.

Starch's English Grammar Tests.—These tests consist of the following: (*a*) Grammatical Scale A, for measuring ability in using grammatically correct English. For Grades V to XII. One sheet for each pupil. (Price, $0.45 a hundred sheets.) (*b*) Punctuation Scale A, for measuring ability in punctuating. For Grades V to XII. One sheet for each pupil. (Price, $0.45 a hundred sheets.) (*c*), (*d*), and (*e*) English Grammar Tests Nos. 1, 2, and 3, for measuring knowledge of technical grammar. For Grades VII to XII. Three sheets to each pupil. (Price, $0.30 a hundred sheets.)

Address University Supply Association, Madison, Wisconsin. Read *Educational Measurements*, by Daniel Starch, chap. viii (Macmillan).

Thompson's Minimum Essentials in Language.—This series consists of 40 or more practice sheets and test sheets. These include exercises in correct uses, pronunciation, punctuation, parts of speech, common irregular verbs, adjectives, adverbs, pronouns, etc. (100 copies, one kind, $0.25; 500 copies, one kind, $1.00 for test sheets, $0.90 for practice sheets.) Address Ginn & Co., Chicago, Illinois.

Trabue's Completion Language Scales.—These scales consist of a series of sentences in which one or more words have been omitted from each. The sentences are arranged in the order of the difficulty which children experience in completing them. They are designed to test a pupil's "ability to think about words and language forms." Address Bureau of Publications, Teachers College, Columbia University, New York City (Scales B, C, D, E, J, K, L, M, each $0.40 a hundred; $3.00 a thousand of any one kind. Practice sheets, $0.20 a hundred, postage extra. Sample set, $0.06 by mail). Read "Completion-Test Language Scales," by M. R. Trabue, *Teachers College Contributions to Education.* (Price, $1.50 in cloth; $1.15 in paper.)

GEOGRAPHY

Hahn-Lackey Geography Scale.—This scale consists of more than two hundred factual and causal questions in geography. The relative difficulty of the questions has been determined on the basis of tests given to 1,696 pupils in twelve schools. (Copies of the scale may be secured for $0.07 apiece.) Address H. H. Hahn or E. E. Lackey, Wayne State Normal School, Wayne, Nebraska.

Starch's Geography Test.—This test consists of a series of 78 incomplete statements concerning geographical facts. In taking the test the pupil supplies the missing facts. (Price, $0.02 a sheet.) Address The University Supply Association, Madison, Wisconsin.

Thompson's Minimum Essentials.—These exercises consist of subject-matter tests on North America, South America, Europe,

Asia, Africa, Australia, and the world. They were designed as aids in securing economy and efficiency in teaching fundamental facts about the geography of the world. (Price for 100, one kind, $0.25; for 500, one kind, $1.00 for test sheets, $0.90 for practice sheets.) Address Ginn & Co., Chicago, Illinois.

HISTORY

The following tests in history have been published or will soon be available:

Bell and McCollum, "A Study of the Attainments of Pupils in United States History," *Journal of Educational Psychology*, May, 1917.

Sackett, L. W., "A Scale in Ancient History," *Journal of Educational Psychology*, May, 1917.

Starch's American History Test, Series A.—Address Daniel Starch, The University of Wisconsin, Madison, Wisconsin.

DRAWING

Thorndike's Drawing Scale.—For Grades V to VIII. This scale consists of a series of carefully graded drawings arranged in the order of increasing merit in drawing. It was designed to aid in measuring the achievement of pupils in drawing and the improvement from grade to grade. (Price, $0.03 by mail; in quantities of 25 or more, $0.02 each, postage extra.) Address Bureau of Publications, Teachers College, Columbia University, New York City. Read "The Measurement of Achievement in Drawing," by E. L. Thorndike, *Teachers College Record*, November, 1913.

ALGEBRA

Standardized Tests in First-Year Algebra.—By H. O. Rugg, University of Chicago, and J. R. Clark, Parker High School, Chicago. These are time tests for skill in sixteen formal operations which have been standardized through use in 50 school systems. The tests include, in addition, lists of standardized verbal problems. (Price, $0.04 per set; a set to each pupil.) Address the School of Education, The University of Chicago, Chicago, Ill.

Read articles by H. O. Rugg and J. R. Clark in the *School Review* for February, March, and May, 1917.

Standardized Practice Exercises in First-Year Algebra.—By H. O. Rugg and J. R. Clark. They include a set of fully standardized exercises for use in developing skill in fourteen formal operations. (Price, $0.09 a set; score cards at $0.005 each.) Order enough sets for the pupils in your largest class, with a score card provided for each pupil. Complete descriptive material accompanies each order. Address H. O. Rugg, School of Education, The University of Chicago, Chicago, Illinois.

Standard Research Tests in Algebra, by Walter S. Monroe.—These tests were designed to measure ability in certain of the more important processes in elementary algebra. (Price, $1.25 a hundred.) Address Walter S. Monroe, Bureau of Educational Measurements and Standards, Emporia State Normal School, Emporia, Kansas. Read "A Test of the Attainment of First-Year High-School Students in Algebra," by Walter S. Monroe, *School Review,* March, 1915.

FREEHAND LETTERING

A Scale for Measuring Freehand Lettering for Use in the Secondary Schools and Colleges.—By H. O. Rugg. It consists of a series of 8 samples of freehand lettering, arranged in the order of increasing merit. It may be used in measuring the efficiency of a student's work in freehand lettering. (Price, $0.25 a copy.) Address H. O. Rugg, School of Education, University of Chicago, Chicago, Illinois. Read "A Scale for Measuring Freehand Lettering," by H. O. Rugg, *Journal of Educational Psychology,* January, 1915.

FOREIGN LANGUAGES

Brown's Connected-Latin Test.—This test consists of a connected passage of Latin to be interpreted in terms of its thought-content. The translation is scored by means of a key. See *Bulletin No. 2* of the Bureau of Research of the New Hampshire Department of Public Instruction, entitled "A Study of Ability in Latin." (In preparation. Ready about October 1, 1917). Address H. A. Brown, State Normal School, Oshkosh, Wisconsin.

Brown's Latin-Sentence Test.—A series of Latin sentences ranging from very easy to very difficult. The sentences are graded and evaluated, and each is assigned a scale value. See *Bulletin No. 2*, mentioned above. Address H. A. Brown, State Normal School, Oshkosh, Wisconsin.

Starch's French Vocabulary and Reading Tests.—The vocabulary test was designed to measure the size of a pupil's vocabulary, and the reading test was designed to measure a pupil's ability to read and translate French sentences. One sheet is required for each pupil. (Price, $0.02 a sheet.) Address University Supply Association, Madison, Wisconsin. Read *Educational Measurements*, by Daniel Starch, chap. xiii (Macmillan).

Starch's German and Latin Vocabulary and Reading Tests.—These tests are similar in organization and price to the French tests described above. Address University Supply Association, Madison, Wisconsin.

PHYSICS

Test for Physics.—This test consists of 75 mutilated sentences which relate to 102 important facts and principles found in each of five physics texts. This test is designed to measure a pupil's knowledge of physics. One set for each pupil. (Price, $0.02 a set. Direction sheets $0.01 each. One required for each examiner.) Address University Supply Association, Madison, Wisconsin. Read *Educational Measurements*, by Daniel Starch, chap. xiv.

II. CURRENT EDUCATIONAL WRITINGS

1. *A book on the psychology of special abilities.*[1]—During recent years students of educational psychology have called attention to the necessity for studying the mental processes involved in learning the specific subjects of the course of study. We are hearing more and more about the psychology of arithmetic, the psychology of reading, etc., and less about the general laws of attention, memory, apperception, etc. With the development of tools for the detection

[1] *The Psychology of Special Abilities and Disabilities.* By Augusta F. Bronner. Boston: Little, Brown & Co., 1917. Pp. 228. $1.75.

of specific mental capacities we have had a great need for books which would summarize what has been done on the psychology of special abilities and disabilities. School people will receive with a great deal of interest, therefore, Dr. Bronner's book on that specific subject. It is a detailed analysis of mental diagnosis treated by the case method, the original data being reported on 45 cases of mental defect that came under the observation of the Juvenile Psychopathic Institute of Chicago.

In the first chapter the writer points out the need for the careful study of the specific abilities and disabilities of individuals in the public schools. It is not enough to recognize that individuals are deficient—particular types of abnormalities must be determined by careful mental examination. After describing the specific tests which are used to detect the presence or absence of particular abilities, the writer points out some present educational tendencies in mental measurement and in the adjustment of school machinery to the particular abilities of the pupil. She says, for example:

> We must view critically the present means for meeting the situation. Ungraded classes, "floating teachers," junior and senior high schools and other administrative measures, advancement in schools by subjects rather than by grades, are all helpful, but inadequate; courses in household and practical arts, commercial, industrial, and agricultural training, offer greater scope for adapting education to individual capacities and interests than was possible in the past, but these, too, are not enough. More fundamental than all of these, because offering the basis of the wise and rational use of all special training, is the need for educational diagnosis. Before undertaking treatment the ailment must be known; the cause of the trouble must be determined before steps can be taken looking toward effective remedy. This is as true of mental peculiarity as of physical troubles, and it applies in educational and vocational life as truly as in any other field. . . . .
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> Analysis of the mental processes which are elements in activities for which defect exists would seem to offer the greatest hope of rationally attacking the problems of specialized incapacity. We have attempted to make such analysis for school subjects in the case of language and number work. As experimentation progresses, much greater knowledge will, no doubt, be gained concerning the psychology of these and other complex activities as well as of the separate mental processes. This knowledge can then be applied in the solving of such problems as those of educational and vocational adjustments.

In general we may state the aim of this book as an attempt to discuss the practical aspects of special abilities and disabilities;

to present in detail concrete methods of attacking particular cases, and to discuss various types, both (*a*) of particular disabilities in those who have normal general abilities and (*b*) of particular abilities in those who are below normal in general capacities.

Public-school teachers will get something of benefit from the discussions of this book as well as those engaged in the technical work of mental examination. The writer gives two chapters to the special defects which are found in number work and in language work, treating separately, in connection with the latter, defects which contribute to inefficiency in reading, spelling, and spoken language. She then takes up, still by the case method, special defects in the separate mental processes, e.g., defects of memory, of inner visual functions, disabilities for work with concrete material, defects in speed of reactions, defects in the higher mental processes. Throughout her discussion Miss Bronner is trying to show ways and means of determining what mental processes are involved in success and failure in order to determine if they throw any light on the pupil's inability to progress at school.

The book concludes with two valuable chapters on defects in mental control and special abilities which are found combined with general mental subnormality.

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2. *A new introductory textbook on the principles and practice of education.*[1]—A new book which has just appeared under the title *School Efficiency: A Manual of Modern School Management*, will appeal directly to teachers of experience in elementary or secondary schools and to students in our normal schools and schools of education who are preparing to teach. It is the only book that has come from the press in recent times which presents in non-technical language a discussion, both of the specific problems of instruction and of the broad questions of administration and supervision. The book is really a treatise on the principles and practice of education.

From the overlapping fields of school hygiene, classroom management, school organization, government, and community relations the author has selected for discussion those topics essential in the preparation of every teacher.

[1] *School Efficiency: A Manual of Modern School Management.* By Henry Eastman Bennett. Boston: Ginn & Co., 1917. Pp. x+375. $1.25.

A distinctive feature is the reconciliation of the theoretical with the practical. Efficiency in this work is common sense and a persistent demand for educative results.

While the style of the book is distinctly non-technical the author presents the content of the most recent scientific investigations in the various fields of education. The general field is discussed by taking up specific problems, one at a time, always from the standpoint of the teacher of average ability. For example, the writer begins his discussion by taking up the school plant. In this connection he treats school grounds, buildings, lighting, heating and ventilation, school furniture, apparatus, and school equipment. He then turns to general problems of health, responsibility, inspection, and supervision. After this are treated the course of study and those phases of school machinery that have to do with the classification and grading of pupils, marking of pupils, promotions and pupils' progress, reports to parents, the daily schedule, and the problem of supervised study.

The discussion of these problems is followed by detailed treatment of the various aspects of the teacher's routine, e.g., specific methods for eliminating waste in teaching and study, problems of punishment—constructive and corrective government.

The latter portion of the book is devoted to a treatment of the relations between the teacher and the community, community cooperation, school extension, special days and occasions, and educational activities in the community outside the school.

The material in the book is carefully organized and the form of presentation is such as to facilitate ease of reading by the young teacher. One of the most helpful aspects of the treatment is found in the practical rules and suggestions, for the handling of the particular problems under discussion, that are offered in each section. These rules make practical common-sense application of the results of recent investigation and the collection of judgment on best practices. The teacher will also find very helpful lists of suggestive points for study and lists of problems accompanying each chapter. The book not only will appeal to teachers generally, but ought to serve admirably as a textbook in introductory courses in education in normal schools and colleges. It might well be taken

as the basis for a year's discussion in reading-circle work in a city system.

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3. *A textbook for students of social education.*—In spite of the recent sociological emphasis in the development of educational theory and practice, no book has appeared to the present time which organizes the principles of sociology and applies them specifically to the particular problems of education. Professor Smith's new book, *Introduction to Educational Sociology*,[1] will be credited therefore as the first to enter this specific field. Part I is a brief and non-technical summary of the principles of sociology, as they have been worked out by the author to enable him to interpret each of the important problems of educational theory and practice on a sociological basis. It summarizes the current theories of individual and social groups, problems of social organization, the family, the play group, the community, and various intermediate groups—such as labor organizations, professional associations, fraternal societies, scientific and literary societies, etc.—with the purpose of providing a scientific background from which the author can interpret recent educational developments and outstanding educational problems.

School people will be interested especially in Part II, in which, under the title "Educational Applications," Professor Smith has taken up the problems of school supervision, various aspects of school administration, class discipline, the progress of students, utilitarian and vocational aims in education, vocational guidance, and teaching methods—all interpreted from the standpoint of present-day sociology.

In its attempt to interpret present-day movements the book will be very helpful to administrative officers and to college courses in social education. It seems to us the best single book now available as a textbook in social education or educational sociology. The author has had extended experience in the public school, both as teacher and supervisor, and has a sound equipment for the consideration of the problems covered by his book.

[1] *Introduction to Educational Sociology.* By Walter Robinson Smith. Boston: Houghton Mifflin Co., 1917. Pp. xvii+412.

4. *A new scale for testing intelligence.*—The scales for testing intelligence which are now available to students of the subject (the Binet scale and its principal revision by Terman, together with the point scale from Yerkes) have involved great difficulty in application with the foreign child, the deaf child, and the speech defective. Recently several workers, notably Healy and Knox, have tried to obviate the language difficulties in the use of intelligence tests by designing so-called "performance" tests. The development of these performance tests, however, has not been accompanied by systematic organization in "scale" form. Furthermore, there has been lacking in the treatment of performance tests adequate standardization of results. Pintner and Paterson in their new book[1] have taken the available tests, have designed several new ones, and have put them together in *A Scale of Performance Tests.* The tests have been selected on three criteria: (1) the scale shall contain as many kinds of tests as possible; (2) each test shall present a relatively new situation to the child; (3) no test shall involve the giving of verbal instructions. The tests, numbering fifteen in all, include the following: (1) the mare and foal picture board; (2) the seguin form board; (3) the five-figure board; (4) the two-figure board; (5) the casuist form board; (6) the triangle test; (7) the diagonal test; (8) the Healy puzzle "A"; (9) the manikin test; (10) the feature profile test; (11) the ship test; (12) the picture completion test; (13) the substitution test; (14) the adaptation board; (15) the cube test.

Chapter ii gives complete directions for conducting the tests, describes the tests themselves, and supplies some historical discussion of each one, together with such standards as have already been published. Chapter iii gives the method by which the tests have been standardized and is important in that it shows the stability of the norms which the writers publish for each test. Chapter iv gives the detailed data collected with the use of the tests, so presented that additional results may be added from time to time, and the reliability of the norms thereby increased. Four different methods of arriving at an index of mental ability have been

[1] *A Scale of Performance Tests.* Rudolf Pintner and Donald G. Paterson. New York: D. Appleton & Co., 1917. Pp. x+213. $2.00.

discussed, a modified type of the year-scale method, the median mental-age method, the point-scale method, and the percentile method. Difficulties encountered in the use of each method are discussed, and the conclusion is drawn that the percentile method seems to offer the best possibilities for future work.

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5. *A new technical monograph.*[1]—A problem of both academic and practical interest is discussed in the recently published *Sixteenth Year Book of the National Society for the Study of Education*, Part II, namely, "is the quality of work done by young men and young women who enter college affected by the age at which they enter or by the size of the school from which they come?"

Two measures of college efficiency are utilized in this investigation: first, comparative rank in scholarship as indicated by the marks received; and second, the length of time spent in college work. An efficient student is one who does good work, and who remains to complete his college course. In fact, scholarship and retention are regarded, not merely as criteria of college efficiency, but as constituting that efficiency in the meaning of the present study. Efficiency is synonymous with good scholarship and with persistency to the end.

The writer introduces the problem with a discussion of two groups of quantitative studies: (1) The first chapter presents a brief critical review of the *methods* pursued in earlier studies which were based upon school and college marks. He classifies "marking" studies as studies of distribution, studies of continuity, and studies of comparison. Studies of distribution are those ordinarily treated under the discussion of teachers' marks and are almost neglected in his analysis. Studies of continuity and comparison are treated by a brief topical criticism of the methods used, the writer taking the opportunity presented to make brief references to statistical methods. On the whole the chapter will be of slight benefit to the reader interested in the *content* of marking studies.

(2) In contrast to chapter i, chapter ii deals with the *results* of earlier studies that have been concerned with age and entrance and

[1] *The Efficiency of College Students as Conditioned by Age and Size of High School.* By Benjamin Floyd Pittenger. The Sixteenth Year Book of the National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co. Pp. 112. $0.90.

with size of the high school. In this chapter the reader will find a fairly adequate résumé of such studies. The remainder of the monograph is devoted to the presentation of the materials, methods, and results of the writer's own study. The original data were obtained from the college records in the University of Minnesota and include 20,000 college marks on 828 students, together with about the same number of high-school marks. The writer gives a detailed discussion of his procedure and leaves the reader with no doubt of his attempt to check up in a detailed way the validity of his methods.

The general conclusions show that high-school graduates entering college before eighteen do better work and remain longer in school than those who enter at eighteen or later; graduates of public schools do better work in college and remain longer than graduates of private schools; graduates of large public schools show greater efficiency than graduates of smaller public schools; schools enrolling twenty-one to thirty pupils per teacher produce better college students than schools with fewer or more pupils per teacher; women are superior to men in both scholarship and retention; elimination from college is highly qualitative—the good student tends to remain, the poor one to go; the lapse of an interval of a year or more between high school and college entrance contributes to greater efficiency in college.

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6. *A children's catalogue of books.*[1]—The author and publisher of this important book have done a great service to teachers in every grade of the elementary school. As the title indicates, the list is large enough to include the best in all of the more important fields of knowledge. The books are entered by number, title, and subject. The price, publisher, grade, date of publication, and annotations are also given. There are also analytical entries for 700 volumes.

The practical value of this volume to teachers can be illustrated by an example. Suppose one desires to find quickly material adapted to a particular grade on Samuel Adams. By turning to

[1] *Children's Catalogue of Thirty-five Hundred Books.* By Corinne Bacon. New York: H. W. Wilson Co., 1917. Pp. 525. $6.00.

the name of this patriot, one will find a number of books containing the desired material. In most cases these books will contain other material as well, but under this particular heading will be found that which relates to Samuel Adams with the exact page reference and the grade or grades to which it is adapted. Similar material could be found as readily on such subjects as games, ice boats, hemp, heat, flies, and a list of others too long to mention.

Mention should be made of a feature of the book not included in the foregoing. If one were looking for material on the Indians of America, one would find this material classified under the following headings: biography, captivities, child life, folklore, government relations, houses, missions, occupations, plays, poetry, stories, and wars. Thus it becomes evident from this list of topics that one could find material adapted to any grade of the elementary school on every phase of Indian life.

It should be said in closing this discussion that the work has been issued in 1,000- and 2,000-title editions also. Either of these will be of much service to teachers who may not have access to the 3,500-title edition.

III. CURRENT PUBLICATIONS RECEIVED

(Detailed discussions of some of the following books will appear later.)

ANDERSON, MABEL L. *A Study of Virgil's Description of Nature.* Boston: Richard G. Badger, 1916. Pp. 224. $1.25.

BAILEY, CAROLYN S., *For the Children's Hour.* Books II and III. Chicago: Milton Bradley Co., 1917.

Contains supplementary reading material adapted to grades two, three, and four.

BENNETT, C. A. *The Manual Arts.* Peoria, Ill.: Manual Arts Press, 1917. Pp. 116. $1.00.

A brief discussion of the selection and organization of subject-matter and the methods of teaching manual arts. Several chapters have previously appeared in magazines.

COCORAN, REV. T. *State Policy in Irish Education.* New York: Longmans, Green, & Co., 1916. Cloth. 8vo, pp. 235. $2.00.

CRESWELL, JOHN BAXTER. *Bible and Mission Stories.* Boston: Gorham Press, 1916. Cloth. 12mo, pp. 145. $1.00.

EVANS, LAWTON B. *Worth While Stories for Every Day.* Chicago: Milton Bradley Co., 1917. Pp. 424.

FALES, JANE. *Dressmaking.* New York: Scribner's, 1917. Pp. 508.
A text for colleges and schools above the elementary.

FLETCHER, MABEL E. *Old Settler Stories.* Chicago: Macmillan, 1917. Pp. 193.
A book in the "Every Child's Series." Contains stories of pioneer life in the Middle West during the thirties and forties.

FORD, J. D. M., and HILLS, E. C. *First Spanish Course.* Chicago: D. C. Heath & Co., 1917. Pp. 327. $1.25.

FRANK LUDWIG, *Essentials of Mechanical Drawing.* Chicago: Milton Bradley Co., 1917. Pp. 132.
A manual for students, arranged for reference and study in connection with courses in manual training, industrial, high, and technical schools.

GATES, H. W. *Recreation and the Church.* Chicago: The University of Chicago Press, 1917. Cloth. Pp. xi+185. $1.00.

Government of India, Bureau of Education. *Indian Education in 1915–16.* Calcutta: Superintendent Government Printing, India, 1917.

HAMLIN, G. S. *Human Nature.* New York: Knickerbocker Press, 1917.
A series of essays on the following subjects: "The Soul," "Death," "Approbation," "Art," "Education," "Necessity," "Understanding," and "Justice."

HANCOCK, JOHN L. *Studies in Stichomythia.* Chicago: The University of Chicago Press, 1917. Paper. Royal 8vo, pp. v+97. $0.75.

HERVEY, W. L., and MELVIN HIX. *Introductory Third Reader* and *Introductory Fourth Reader.* New York: Longmans, Green, & Co., 1916 and 1917. Pp. 274 and 314. $0.50 and $0.56.

HOSIC, JAMES F., and HOOPER, CYRUS L. *A Child's Composition Book;* also *A Composition Grammar.* Chicago: Rand McNally & Co., 1916. Pp. 281 and 296. $0.50 and $0.60.

KIRKPATRICK, N. G. *The Rural School from Within.* Philadelphia: J. B. Lippincott Co., 1917. Pp. 303.

KOOS, L. W. *The Administration of Secondary-School Units.* Chicago: The University of Chicago Press, 1917. Pp. 194.

LARSON, W. E. *Wisconsin County Training Schools for Teachers in Rural Schools.* Department of the Interior, Bureau of Education, Bulletin No. 17, 1916.

LIEBNITZ, W. G. *New Essays Concerning Understanding.* Trans. by A. G. Langley (2d ed.). Chicago: Open Court Publishing Co., 1916. Pp. xiv +861.

LUTKENHAUS, ANNA M., and KNOX, MARGARET. *Story and Play Reader.* Vols. I, II, and III, for grades six, seven, and eight. New York: Century Co., 1917. $0.60 a volume.

MORREY, O. B. *The Fundamentals of Bacteriology.* Philadelphia: Lea and Febiger, 1917. Pp. 289. $3.00.

A text intended to cover an introductory semester's work.

NELSON, RALPH W. *Hattie Elizabeth Lewis Memorial. Essays in Applied Christianity. How Christ Would Organize the World.* Published by the University of Kansas, 1917. Pp. 32.

ROBERTS, A. W., and ROLFE, J. G. *Cicero.* New York: Scribner's, 1917.

ROBESON, F. E. *A Progressive Course of Precise Writing.* New York: Oxford University Press, 1917.

Aims to present the leading features of what is described in a number of original documents.

SMITH, A. *The New Barnes Problem Books for Grade Seven.* New York: A. S. Barnes Co., 1917. In two books. Pp. 61 and 70. $0.10 each.

The two books contain 140 carefully graded lessons of about ten problems each, grouped in a way to tell a story. Might serve as a teacher's "Term Plan."

TAYLOR, JOSEPH S. *Duplicate Schools in the Bronx.* New York: Published by the Board of Education, 1916.

THAMIN, R. *L'Université et la guerre.* Paris: Librairie Hatchette et Cie, 1916.

THWING, CHARLES F. *Education According to Some Modern Masters.* New York: Platt & Pick Co., 1916. Pp. 296. $2.00.

A literary discussion of educational sources.

VAN DEUSEN, C. *Demonstration in Woodwork.* Peoria, Ill.: Manual Arts Press. $1.15.

The book represents a plan to be followed by students who wish to learn the fundamentals of woodworking, but who have no opportunity to receive continuous instruction from one especially prepared to give it. The book is particularly valuable for rural schools.

Webster's Collegiate Dictionary. Springfield, Mass.: G. & C. Merriam Co., 1917. Pp. 1224.

Webster's Collegiate Dictionary, 3d edition, is the largest abridgment of *Webster's New International.* It contains most of the essentials of the larger work and was prepared under the same editorial supervision. The thin-paper edition de luxe is printed on bible-paper and was especially made to combine the qualities of opacity, body, strength and an excellent printing surface, with requisite thinness. The result is a convenient volume one-half the bulk of the edition on regular book-paper. The book is complete enough for the average student and yet small enough to find a place upon the writing table or business desk.

WEEKS, A. D. *The Avoidance of Fires.* Chicago: D. C. Heath & Co., 1916. Pp. 128.

A textbook on fire prevention. Aims to create a mental attitude, as well as to impact knowledge. Could be used in supplementary work in civics, arithmetic, elementary science, physics, or language.